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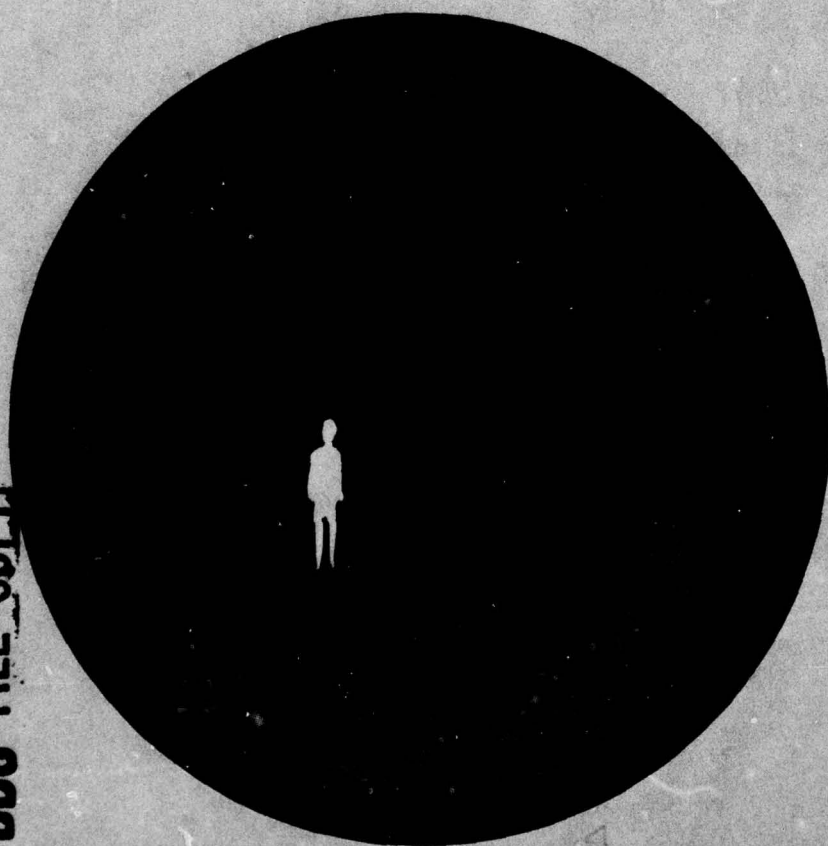
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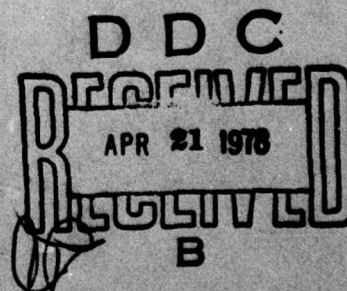
NAVY RECRUIT OPTIMIZATION, POST-1980.
PHASE II: CURRENT ASSESSMENT AND
OPTIONS FOR NAVY APPRENTICE TRAINING

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SECTION I

INTRODUCTION

In response to tasking by the Chief of Naval Education and Training (CNET), the Training Analysis and Evaluation Group (TAEG) initiated a project addressing Navy recruit training for the post-1980s. Phase I of this effort was an assessment of the recruit training program and provided concepts for the future. The results of Phase I were published in TAEG Report No. 34 (Copeland, Henry, Mew, and Cordell, 1976). Phase II, currently underway, addresses future plans, training topics, methods, and optimization. In addition, related studies were directed dealing with assessment of Navy apprentice training; Company Commander selection, training, and function; Recruit Training Command Division Officer selection and training; and costing of average-on-board (AOB) recruit billets. This report, the first in a series, addresses Navy apprentice training.

NAVY APPRENTICE TRAINING

Fleet assignment preparation of new Navy enlistees begins with recruit training. Upon completion of recruit training, the recruit graduate has two routes for further shore-based training. Either he has been guaranteed or selected for "A" school or, if nondesignated, enters apprentice training. The apprentice training period is from 2.4 to 4 weeks of orientation and training in the Airman (AN), Fireman (FN), Seaman (SN), or Constructionman (CN) rating, which prepares the trainee to function as a "striker" at his first duty station.

Approximately 20 percent of newly enlisted Naval personnel attend apprentice training, and the program is currently receiving command attention by the CNET and the Chief of Naval Technical Training (CNTECHTRA). As a result, several changes have been initiated, or are in the process of evaluation. These include a revised discharge procedure, recycling of other "A" school academic dropouts through apprentice training, the lengthening of Fireman apprentice training to 4 weeks, and a pilot program concerning the organizational management of apprentice training within the Naval Training Centers (NTCs).

PURPOSE OF THE STUDY

This study addressed the basic question: "What changes, if any, will be required in the conduct of apprentice training during the post-1980 period in order to meet Fleet requirements?" To address this question, three major areas were considered: (1) determination of the current status of the program, (2) identification of existing problems and recommended solutions, and (3) organizational options for the placement of apprentice training in the Navy training system.

APPROACH

An analytic study was undertaken to examine the existing apprentice training programs, including the current curriculum for Airman, Fireman, Seaman, and Constructionman, as well as the management, operation, and placement of this training in the total Navy shore-based training system. A longitudinal study of one class each for Airman, Fireman, and Seaman was conducted at the Recruit

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Training Command (RTC) Orlando, Florida. TAEG personnel attended regularly scheduled classes for the duration of each of the courses and followed the progress of other classes throughout the study. Visits were made to the RTCs at Great Lakes and San Diego to gather data, compare their Airman, Fireman, and Seaman programs, and conduct interviews with staff personnel, instructors, and trainees. Although the Constructionman apprentice training program is presently inactive, a visit was made to the Naval Construction Training Center (NAVCONSTRACEN), Gulfport, Mississippi, to determine how Constructionman apprentice training was conducted and training methods that would be used if the program were to be reactivated. Reference materials used for all apprentice courses were examined, as were curricula, class schedules, test results, training materials, and correspondence pertaining to conduct of the courses. The management functions of all echelons of command were examined relating to organizational planning and procedures.

ORGANIZATION OF THE REPORT

In addition to this introduction, four other sections are included in this report. Section II presents a background of the current program and a general description concerning the management and control of apprentice training. Section III discusses the current apprentice programs conducted by the RTCs. It includes information on trainee characteristics, throughput, and training program operation. Section III is supported by appendices outlining curriculum content and training methodology for Airman, Fireman, Seaman, and Constructionman. Section IV provides analyses of apprentice training activities, delineates problem areas, and discusses apprentice training design for the 1980s. Recommendations resulting from the analyses are provided. Section V presents various options for reorganization of the apprentice program. A training plan for implementation of a selected option is outlined, incorporating a list of actions and time frames. This section is concluded with recommendations to management concerning the future structure of apprentice training.

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SECTION II

APPRENTICE TRAINING IMPLEMENTATION, MANAGEMENT, AND CONTROL

The implementation of the present apprentice training resulted from a Chief of Naval Operations (CNO) sponsored Recruit Training Conference held during November 1971.¹ During this conference, Chief of Naval Personnel (CHNAVPERS) representatives proposed a new recruit curriculum which would place training emphasis in proper areas in accordance with a then recent report² on the effectiveness of recruit training. The curriculum was designed to shorten training pipelines, especially for the airmen, and eliminate nonessential or redundant training for all apprentice paths. The proposal was purported to have not only the potential for shortening many follow-on "A" school curricula by providing relevant, preliminary rate-oriented training but, more importantly, to provide a better trained sailor being assigned directly to the Fleet.

The new program would place shipboard orientation in the basic training pipeline and relieve the Fleet of this training requirement. This was accomplished by remodeling the 9-week recruit training curriculum to 7.6 weeks of basic military training immediately followed by 2.4 weeks of apprentice training for the six general detail ratings. The Airman (AN), Fireman (FN), and Seaman (SN) apprentice courses were assigned to RTCs. It was decided the Hospitalman (HT) and Dentalman (DT) ratings could be better trained via the "A" school route. The Constructionman (CN) training was programmed to be conducted at the NAVCONSTRACEN, Gulfport, Mississippi for 4 weeks. Constructionman training provided broad base training in all the construction fields, rather than the more specific technical material covered for Airman, Fireman, and Seaman training. Each of these courses concentrated on functional areas in which the graduate would be working at his first duty station.

In February 1972, CNTECHTRA assumed the responsibility for developing and implementing the new recruit training concept. By memorandum,³ the Bureau of Naval Personnel issued implementation instructions to assist CNTECHTRA in initiating the program. A CNET message⁴ provided implementation instructions initiating apprentice training in the latter part of June 1972. Due to the short implementation time, less than optimal funding and training support were immediately available for the new apprentice training courses. The apprentice courses started on schedule due, primarily, to the dedication of the staff personnel assigned, the NTC/RTC Commanders, and the Commanding Officer of the NAVCONSTRACEN who accepted additional responsibilities and provided support from limited existing resources. Commencing on 3 July 1975, Airman apprentice training was opened to women, followed later by the Fireman, Seaman, and Constructionman courses.

¹ CNO ltr OP-991D2/jsj Ser 93P991, 8 Mar 1972

² CNO memo OP-991D2/lcm 5730 Ser 233P991, 20 Mar 1973

³ BUPERS memo Pers-A120/clw Ser 356/72, 19 Apr 72

⁴ CNET msg 102313Z May 72

MANAGEMENT CONTROL

The importance of the Navy apprentice program is demonstrated by the size of the program. During FY 77 the Navy graduated 27,819 apprentice trainees.⁵ The projected figure for FY 78 is 27,323 men and women.⁶ Apprentice training is classified by the Department of Defense as Specialized Skill Training that provides for specific skills needed during the first Fleet duty assignment. It was reported to Congress as the largest "fundamental training" program conducted by the Navy.⁷

Each level of command maintains an organization manual outlining the mission and functions of the activity. At the RTC level, this document also provides regulatory directives. These documents are subject to change and require constant updating based on directives from higher authority, command prerogative, and operational experience. Experienced staff personnel at the RTCs functionally manage and maintain continuity of the apprentice training program as well as recruit training since the apprentice training program was initially conceived as an expansion of the recruit training program. Individual staff members at various command levels are concerned not only with the basic orientation and indoctrination given newly enlisted personnel but have the added responsibility for training the technical apprentice skills.

The following paragraphs discuss the mission and functions of various commands and their staffs directly responsible for the daily management of the apprentice training program.

OFFICE OF THE DIRECTOR, NAVAL EDUCATION AND TRAINING (DNET). The DNET (OP-099), exercises, for the CNO, policy, direction, and control of the education and training of Naval personnel.⁸ To implement the various training plans, OP-099 assigned this responsibility to the Program Division (OP-991). The mission of this division includes consolidation, coordination, and direction of various training plans to meet approved requirements. OP-991 functions relative to apprentice training are:

- . consolidates and coordinates responses to higher authority
- . maintains liaison with the Office of the Secretary of Defense, the Secretary of the Navy, other governmental departments and agencies, and civilian activities
- . monitors training through the Deputy Chief of Naval Operations (DCNO) (Manpower), OP-01

⁵ CNET Report 1500-1208 of Oct 77

⁶ Department of Defense, Military Manpower Training Report for FY 1978, March 1977, p. V-5

⁷ Ibid, p. V-5

⁸ OPNAVINST 5430.48 CH-4, Organization Manual, Office of the Chief of Naval Operations, 5 July 1974, p. 099-7

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- . coordinates the actions required of all DCNOs, DMSOs, bureaus, commands, and offices to ensure effective Navy training
- . reviews responsibilities and procedures of training and training support organizations and recommends changes to improve effectiveness and efficiency
- . coordinates the action of DCNOs, DMSOs, bureaus, commands, and offices to identify training requirements and to prepare plans for training programs to meet those requirements
- . monitors feedback and evaluation of training output and ensures appropriate action by cognizant command echelons
- . coordinates and approves the training inputs to Navy documents such as the Tentative Program Objectives Memorandum (TPOM), Program Objectives Memorandum (POM), and Department of the Navy Five-Year Program (DNFYP).⁹

The apprentice training program is managed by the Professional Training Branch (OP-0991C) with specific staff responsibility to the Assistant for Officer and Enlisted Accession Training (OP-0991C2). The OP-0991C2 "desk" also has staff responsibility for recruit training, Officer Candidate School, Surface Warfare, and Marksmanship training, as well as the attrition studies and Volunteer Out program. In addition, the incumbent sits on various boards at the CNO level.

CHIEF OF NAVAL EDUCATION AND TRAINING (CNET). The CNET is responsible for the assigned shore-based education and training of the Navy under the Chief of Naval Operations. The daily operation of recruit training (including apprentice training) is assigned to the Assistant Chief of Staff for Training Operations (N-2). N-2 acts as staff sponsor for assigned individuals and team training and provides policy guidance and direction for recruit, human resources management, officer indoctrination, individual technician, combat systems, new ship implementation, and selected foreign training.¹⁰ The apprentice training is assigned to the Indoctrination, Foreign, Recruit and Interservice Training Division (N-21) with specific staff responsibility delegated to Foreign and Recruit Training (N-211). Highlights of N-211 functions pertaining to recruit and apprentice training are:

- . coordinates the execution of training plans
- . maintains liaison with functional commanders concerning the adequacy of resources and instructional programs to meet established training requirements

⁹ Ibid, p. 099-5

¹⁰ CNETSTAFFINST 5400.1C, Staff Organization Manual, Chief of Naval Education and Training of 30 December 1977, p. VI-3

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- . investigates training and management problems and directs corrective action
- . assists other staffs of CNET in the development and implementation of new training programs
- . ensures that ongoing training programs are in effect, to minimize student delays
- . conducts briefings on recruit training as required.¹¹

CHIEF OF NAVAL TECHNICAL TRAINING (CNTECHTRA). Part of the CNTECHTRA mission is to coordinate and direct Navy recruit and technical training.¹² Recruit training, including the apprentice training program, is assigned to the Assistant Chief of Staff for Indoctrination and Human Resource Management (N-6).¹³ The basic function of N-6 is "to be responsible for the planning and development of training requirements and administration of assigned functional schools in their use of manpower, equipment, training aids and devices, physical facilities, and other resources."¹⁴ Like his counterparts at the CNO and CNET levels, the CNTECHTRA (N-6) must coordinate with other staff offices concerned with manpower, facility support, training methods, personnel qualification standards (PQS), and funding, as well as, direct, supervise, and coordinate the Recruit Training Command Branch (N-62). This branch is composed of the Recruit Training Program Coordinator (N-621), the Recruit Training Specialist (N-622), the Assistant TPC RTC Training/Statistics (N-623), and Assistant TPC for RTC Training (N-624). The basic function of the N-6 branch is the coordination and administration of manpower, equipment, training aids, and devices. The duties of members of the branch include:

- . monitor and review of curricular material to insure that it conforms to CNTECHTRA A-10-A requirements
- . maintain and supervise recruit training at RTC San Diego, Orlando, and Great Lakes
- . identify equipment required to support the courses of instruction and develop Equipment Requirement Lists
- . publish and distribute recruit training curricula
- . distribute recruit accession data
- . monitor onboard population at RTCs

¹¹ Ibid, p. VI-4

¹² CNTECHTRASTAFFINST 5400.2A, Staff Organization, 1 March 1974, p. 1-1

¹³ CNTECHTRASTAFFNOTE 5450, Organization Changes Within CNTECHTRA Headquarters, 21 September 1977, incl (2)

¹⁴ CNTECHTRASTAFFINST 5400.2C, Staff Organization, 30 March 1976, 8010

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- . provide information concerned with reasons for recruit attrition, test score data, recruit setbacks, comparison of high school and nonhigh school recruits, and other data required by higher authority
- . maintain files on all areas relating to Basic Military Training (Seaman, Airman, and Fireman apprentice schools) and Company Commander training.¹⁵

COMMANDER, NAVAL TRAINING CENTER (COMNTC). The mission of the NTC is to exercise command over and coordinate the efforts of the assigned subordinate activities. These subordinate activities vary among Great Lakes, San Diego, and Orlando. However, each command does have the responsibility of effecting basic indoctrination or recruit training for enlisted personnel.

Functions of the NTC are assigned by the Chief of Naval Technical Training as outlined in CNTECHTRAINST 5450.35B. These functions include:

- . formulate and implement policy guidance
- . direct and coordinate command planning
- . as CNTECHTRA funding agent, issue operating budget; review resource requirements and justifications; and program and reprogram resources for component commands as required
- . exercise effective control over financial operations within the command
- . exercise general court-martial jurisdiction and supervisory authority over Summary and Special Court-Martial.¹⁶

NAVAL ADMINISTRATIVE COMMANDS (NAVADMINCOM). Each NAVADMINCOM is directly responsible to their COMNTC in the performance of their function as established by CNTECHTRAINST 5450.85 (CH-1). The basic mission of the NAVADMINCOM is to provide logistic support, including administrative services to the RTC, Service School Command (SSC), and other such activities as may be designated by higher authority. Several key functions are highlighted that have a direct impact on the RTC and its apprentice training program. These include:

- . maintain and operate the facilities of the NTC
- . provide facilities and services in the area of Navy exchange, chaplain, welfare and recreation. For example, in the chaplain department there is a Recruit Chaplain Division that services personnel assigned to the apprentice training program
- . provide messing, berthing, and housekeeping for enlisted personnel

¹⁵ Ibid, 8016-8018

¹⁶ NTCORLINST 5450.2B, Organization Manual, 17 June 1977, pp. 1-3

- provide services in the areas of security, public works, postal, supply, communication, legal, and personnel accounting records to personnel of the RTC.¹⁷

COMMANDING OFFICER, RECRUIT TRAINING COMMAND (CO RTC). Each of the RTCs has the same apprentice training mission: "Conduct an apprentice training program which provides the trainees with the skills and knowledges necessary to serve in a nonstriker billet and subsequent duty assignments ashore and afloat."¹⁸

In general, the RTCs have organized the apprentice program under their technical training departments. However, the basic RTC organization and regulatory directives place the major emphasis on recruit training. Therefore, each command must run two separate programs--one for recruits and one for apprentices. This places a burden on commands, their staffs, recruits, and apprentice trainees.¹⁹ Figure 1 depicts highlights of the flow of the review and interface procedure for coordination, implementation, and operation of the apprentice training program. The system is complex due to the number of commands involved and multiple input points.

Without exception, the command perspective at all three RTCs as concerned with apprentice training is one of doing everything in their power to make the apprentice program as much like "A" school and the operational environment as possible. For example, the intermixing of recruits and apprentice trainees has been recognized as a less than optimal situation resulting in placing apprentice training areas in isolation from recruit training areas as much as possible.

¹⁷ NAVADMINCOMORLINST 5450.1, Organization Manual, 7 October 1977

¹⁸ CNTECHTRAINST 5450.34A of 11 June 1976, para 2H

¹⁹ CNTECHTRA 1tr Code 621/WPO 1900, Ser 62/99 of 15 Sep 1977, Subj: Apprentice Trainee Discharge Procedure

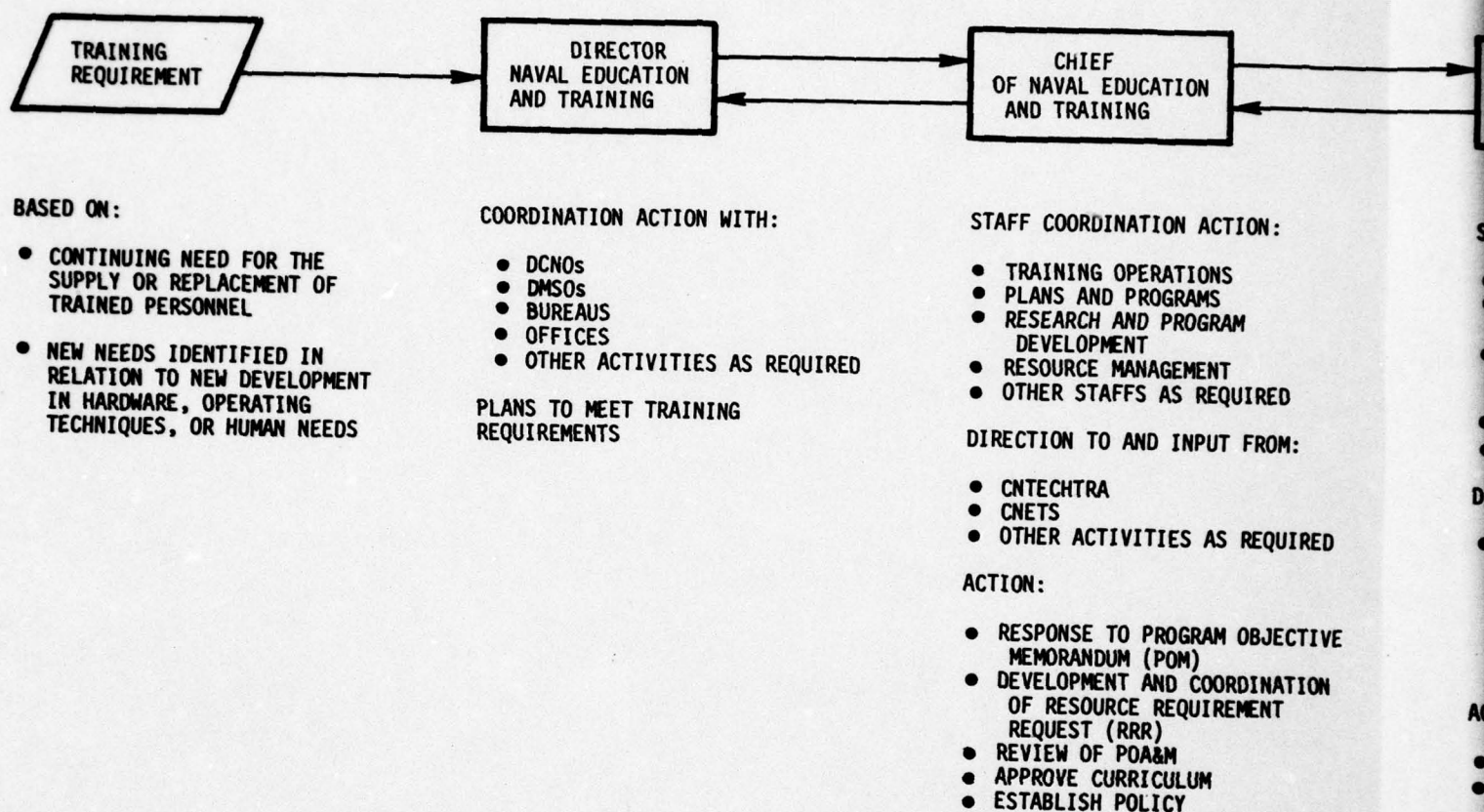


Figure 1. Apprenticeship Training Initial Requirements



STAFF COORDINATION ACTION:

- INDOCTRINATION AND HRM
- SURFACE WARFARE AND BASIC TRAINING
- AIR WARFARE AND COMMAND MANAGEMENT INFORMATION SYSTEM
- PLANS, PROGRAMS AND FACILITIES
- RESOURCES MANAGEMENT SYSTEM

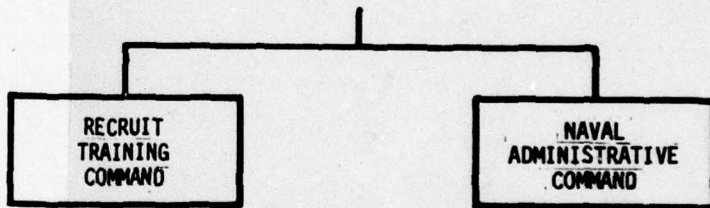
DIRECTION TO AND INPUT FROM:

- COMMANDER, NAVAL TRAINING CENTERS
- RECRUIT TRAINING COMMANDS
- NAVAL ADMINISTRATIVE COMMANDS

ACTION:

- DEVELOPMENT OF POA&M
- IDENTIFY NEW TRAINING EQUIPMENT
- IDENTIFICATION AND JUSTIFICATION OF RESOURCES AND LOGISTIC SUPPORT
- APPROVAL AND/OR PROMULGATION OF CURRICULUM
- EVALUATION

- COMMAND
- FUNCTION
 - POLICY
 - PLANNING
 - FUNDING AGENT
 - FINANCIAL OPERATION
 - COURT-MARTIAL JURISDICTION
 - PERSONNEL MANNING
 - CONTROL FACILITIES OPERATION
 - ORGANIZATION MANAGEMENT



RESPONDS TO HIGHER AUTHORITY OR COORDINATES

- BILLET REQUIREMENTS
- FACILITY REQUIREMENTS
- SERVICE REQUIREMENTS
- FUNDING REQUIREMENTS
- INPUT TO POA&M
- DEVELOPMENT, AS DIRECTED, OF TRAINING CURRICULUM
- IMPLEMENT APPROVED CURRICULUM

PROVIDE SERVICES

- SECURITY
- PUBLIC WORKS
- POSTAL
- SUPPLY
- COMMUNICATIONS
- LEGAL
- PERSONNEL
- FACILITY
- CHAPLAIN

SECTION III

CURRENT PROGRAM

This section describes trainee characteristics, trainee throughput, and the training programs conducted within apprentice training. A synopsis of ongoing programs is provided in appendices A, B, and C. Appendix D provides reconstructed information pertaining to Constructionman apprentice training although the program is currently inactive. It is included because of the innovative and practical approach to certain portions of the curriculum that may be adaptable to other apprentice training courses.

TRAINEE CHARACTERISTICS

Apprentice trainees are male and female recruit graduates. They are general detail personnel who have either preferred not to go the "A" school route or did not meet the qualifications for school guarantee. There is a provision to route "A" school designates through the apprentice program while they await school openings.

The Armed Services Vocational Aptitude Battery (ASVAB) is the selection battery used for enlisting recruits and a primary measure of academic ability. The test battery consists of 12 special tests. Most closely correlated with general learning ability are the Word Knowledge (WK), Arithmetic Reasoning (AR), and Space Perception (SP) tests. The ASVAB has replaced the Armed Forces Qualification Test (AFQT) formerly used for selection purposes. For a better understanding of what these scores mean for training purposes, the AFQT percentile score can be configured from the ASVAB utilizing the WK, AR, and SP raw scores to place the individual in a mental group. Table 1 equates ASVAB-AFQT scores to a mental group category.

TABLE 1. ASVAB VERSUS MENTAL CATEGORY

<u>ASVAB-AFQT Percentile Scores</u>	<u>AFQT Mental Category</u>
93-99	I
65-92	II
49-64	Upper III
31-48	Lower III
21-30	Upper IV
10-20	Lower IV

ASVAB scores were examined for a sample group of trainees in the Airman, Fireman, and Seaman programs. The majority of the trainees fall into the Upper III mental category. Of importance for training purposes is the wide range of abilities in the apprentice training population. For example, WK scores of the sample group range from 38 to 68 and reading comprehension scores from 5.0 to 12.0. Scores for a sample group of women were examined. Women have slightly higher scores and are a more homogeneous ability group. This is not surprising

in view of the higher selection cut-off scores for women. The scores obtained for a representative sample of apprentice trainees are shown in table 2.

TABLE 2. COMPARATIVE ASVAB SCORES FOR THREE APPRENTICE TRAINING GROUPS (COMBINED MALE AND FEMALE)

	WK		AR		SP		READING COMP.	
	Mean	Range	Mean	Range	Mean	Range	Mean	Range
AN	49.66	41-54	47.33	34-53	48.00	43-61	8.65	6.5-11.9
FN	49.32	42-60	48.72	34-59	50.76	38-60	10.54	6.5-12.0
SN	48.89	38-68	53.24	34-69	47.12	31-56	8.72	5.0-12.0
Mean Scores	49.29	38-68	49.76	34-69	48.62	31-61	9.30	5.0-12.0

TRAINEE THROUGHPUT

Records of apprentice training throughput at the three RTCs for the period January 1976 through July 1977 were examined and are summarized in table 3. The following conclusions are drawn from the data:

- The largest throughput occurred at Great Lakes (40 percent), followed by San Diego (32 percent), and Orlando (28 percent).
- Approximately one-half of all trainees attended the Seaman course, with Fireman and Airman courses each accommodating one-quarter of the trainees. This pattern was consistent for each of the three RTCs.
- Average monthly attendance at all schools was 2,009, of which 1,045 attended Seaman school, 480 Fireman school, and 484 Airman school.
- Average monthly flow for Orlando was 551, San Diego 647, and Great Lakes 810.

Throughput figures are broken down by month for each of the three training locations (tables 4, 5, and 6). These data are summarized as follows:

- Orlando conducted an average of 4.2 classes per month for each of the three courses; average class size was 63.8 for Seaman, 31.1 for Fireman, and 36.1 for Airman (table 4).

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TABLE 3. SUMMARY OF TRAINEE THROUGHPUT AT THE RTC APPRENTICE TRAINING SCHOOLS, FOR THE PERIOD JANUARY 1976 THROUGH JULY 1977

THROUGHPUT	ORLANDO	SAN DIEGO	GREAT LAKES	TOTAL
Seaman	5105	6713	8042	19,860
Fireman	2487	2785	3846	9,118
Airman	2885	2802	3508	9,195
Total	10,477	12,300	15,396	38,173
Dist.	28%	32%	40%	100%
<u>Load Distribution</u>				<u>AVERAGE</u>
Seaman	49%	55%	52%	52%
Fireman	24%	22%	25%	24%
Airman	27%	23%	23%	24%
	100%	100%	100%	100%
<u>Average Input Per Month</u>				<u>TOTAL AVERAGE</u>
Seaman	268.7	353.3	423.3	1045.3
Fireman	130.9	146.6	202.4	479.9
Airman	151.8	147.5	184.6	483.9
Total	551.4	647.4	810.3	2009.1
<u>Average Per Class</u>				<u>TOTAL AVERAGE</u>
Seaman	63.8	46.6	68.5	178.9
Fireman	31.1	29.3	45.9	106.3
Airman	36.1	26.9	53.1	116.1
Total	131.0	102.8	167.5	401.3

TABLE 4. CLASS LOADINGS AT ORLANDO APPRENTICE TRAINING SCHOOL
FOR THE PERIOD JANUARY 1976 THROUGH JULY 1977*

MONTH	SEAMAN		FIREMAN		AIRMAN		TOTAL	AVERAGE
BEGIN	CLASSES	TOTAL	CLASSES	TOTAL	CLASSES	TOTAL	ALL CLASSES	PER CLASS
JAN 76	4	242	4	71	4	142	455	37.9
FEB	4	182	4	117	4	121	420	35.0
MAR	5	143	5	105	5	76	324	21.6
APR	4	148	4	77	4	82	307	25.6
MAY	5	197	5	70	5	172	439	29.3
JUN	4	185	4	56	4	139	380	31.7
JUL	4	169	4	48	4	110	327	27.3
AUG	5	356	5	107	5	210	673	44.9
SEP	4	433	4	225	4	251	909	75.8
OCT	4	392	4	186	4	194	772	64.3
NOV	5	506	5	260	5	246	1012	67.5
DEC	2	267	2	138	2	177	582	97.0
JAN 77	5	450	5	265	5	274	989	65.9
FEB	4	215	4	150	4	108	473	39.4
MAR	4	264	4	160	4	129	553	46.1
APR	4	279	4	198	4	158	635	52.9
MAY	5	335	5	141	5	157	633	42.2
JUN	4	179	4	66	4	74	319	26.6
JUL	4	163	4	47	4	65	275	22.9
Total	80	5105 (49%)	80	2487 (24%)	80	2885 (27%)	10,477 (100%)	
AVERAGE PER MONTH	4.2	268.7	4.2	130.9	4.2	151.8	551.4	
AVERAGE PER CLASS		63.8		31.1		36.1	43.7	
WOMEN APPRENTICE TRAINEES (FY-77)		766 (19.5%)		315 (15.5%)		39 (2.0%)		

*Women Included in FY-77 Only

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TABLE 5. CLASS LOADINGS AT SAN DIEGO APPRENTICE TRAINING SCHOOL
FOR THE PERIOD JANUARY 1976 THROUGH JULY 1977

MONTH	SEAMAN		FIREMAN		AIRMAN		TOTAL	AVERAGE
BEGIN	CLASSES	TOTAL	CLASSES	TOTAL	CLASSES	TOTAL	ALL CLASSES	PER CLASS
JAN 76	11	691	8	298	7	227	1216	46.8
FEB	4	207	4	74	4	47	328	27.3
MAR	7	315	6	214	5	114	643	35.7
APR	4	205	4	148	4	71	424	35.3
MAY	5	206	4	118	4	69	393	30.2
JUN	5	179	5	97	5	80	356	23.7
JUL	4	143	4	50	4	80	273	22.8
AUG	10	524	7	218	9	312	1054	40.5
SEP	9	550	6	224	8	253	1027	44.7
OCT	10	493	4	162	6	183	838	42
NOV	14	799	6	316	12	400	1515	47.3
DEC	3	173	2	79	2	79	331	47
JAN 77	14	764	7	287	7	293	1344	48
FEB	10	330	6	112	5	117	559	27
MAR	8	300	4	91	4	91	482	30
APR	9	319	4	110	4	118	547	32
MAY	7	220	5	95	5	110	425	25
JUN	4	115	4	37	4	34	186	16
JUL	6	180	5	55	5	124	359	22
Total	144	6713 (55%)	95	2785 (22%)	104	2802 (23%)	12,300 (100%)	
AVERAGE PER MONTH	7.6	353.3	5.0	146.6	5.5	147.5	647.4	
AVERAGE PER CLASS		46.6		29.3		26.9	35.9	

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TABLE 6. CLASS LOADINGS AT GREAT LAKES APPRENTICE TRAINING SCHOOL
FOR THE PERIOD JANUARY 1976 THROUGH JULY 1977

MONTH	SEAMAN		FIREMAN		AIRMAN		TOTAL	AVERAGE
BEGIN	CLASSES	TOTAL	CLASSES	TOTAL	CLASSES	TOTAL	ALL CLASSES	PER CLASS
JAN 76	*	641	*	218	*	305	1164	*
FEB	8	372	6	298	5	189	859	45.2
MAR	7	343	5	147	5	72	562	33.0
APR	5	377	4	222	5	123	722	51.6
MAY	5	210	5	195	5	129	534	35.6
JUN	4	205	4	153	4	99	457	38.1
JUL	4	196	4	115	4	73	384	32.0
AUG	5	309	4	115	4	115	539	41.5
SEP	9	735	6	244	6	343	1322	63.0
OCT	8	665	4	341	6	287	1293	71.8
NOV	8	695	5	339	5	311	1345	74.7
DEC	9	818	7	487	7	449	1754	76.3
JAN 77	7	606	3	224	4	216	1046	74.7
FEB	8	458	5	166	3	162	786	49.1
MAR	6	369	3	114	3	190	673	56.1
APR	3	294	2	174	3	176	644	80.5
MAY	5	256	5	104	5	83	443	29.5
JUN	4	145	4	105	4	48	298	24.8
JUL	3	348	3	85	3	138	571	63.4
Total	108	8042 (52%)	79	3846 (25%)	81	3508 (23%)	15,396	
AVERAGE PER MONTH	**6.0	423.3	**4.4	202.4	**4.5	184.6	810.3	
AVERAGE PER CLASS		68.53		45.92		39.54	53.10	

* Not available

** Adjusted - No reliable data for Jan 76

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- San Diego conducted an average of 7.6 classes per month for Seaman, 5.0 per month for Fireman, and 5.5 per month for Airman. Average class size for Seaman was 46.6, Fireman, 29.3, and Airman, 26.9 (table 5).
- Great Lakes conducted an average of 6 classes per month for Seaman, 4.4 for Fireman, and 4.5 for Airman. The average class size for Seaman was 68.5, for Fireman, 45.9, and for Airman, 39.5 (table 6). (Figures are adjusted for lack of January 1976 data.)

The total number of Airmen trained was 9,195. Of these, 2,885 were trained at Orlando, 2,802 at San Diego, and 3,508 at Great Lakes. A total of 9,118 Firemen were trained; 2,487 at Orlando, 2,785 at San Diego, and 3,846 at Great Lakes. In excess of 50 percent of the population were trained as Seamen for a total of 19,860. Orlando trained 5,105, San Diego 6,713, and Great Lakes 8,042 (table 3).

A wide variation in trainee flow from month to month and class to class occurred at all schools. Figure 2 provides a comparison of student flow by month at each of the three locations.

The three locations experienced roughly equivalent student flow variation over the period, with peaks occurring in the September through January period, and lows during the February through July period. One exception to the flow pattern across the three schools occurred in December when Great Lakes showed high activity and Orlando and San Diego low activity. Figure 2 illustrates the sporadic loading which results in considerable fluctuation in the requirements for instructors, classroom facilities, messing, and berthing.

TRAINING PROGRAM

The apprentice training officer and a small staff of senior petty officers supervise and conduct the three apprentice courses (Airman, Fireman, and Seaman) offered at each RTC. The petty officer instructors are selected by rating to instruct the general rating course of their specialty. All are sea experienced recruit company commanders on rotation duty from training recruits. Prior to assuming duty as an apprentice training instructor, a thorough indoctrination is provided.

Apprentice training presents to the trainee a less restrictive environment than provided during recruit training. Student critique sheets reflect an acceptance of the curriculum provided as well as the approach to offering opportunity for increased individual responsibility. Although the apprentice training instructors and staff are demanding, they provide assistance to the trainee when needed.

TRAINING RELATED TOPICS

The remainder of this section addresses policies and areas of apprentice training selected because they periodically become problem areas to trainees and training staff alike.

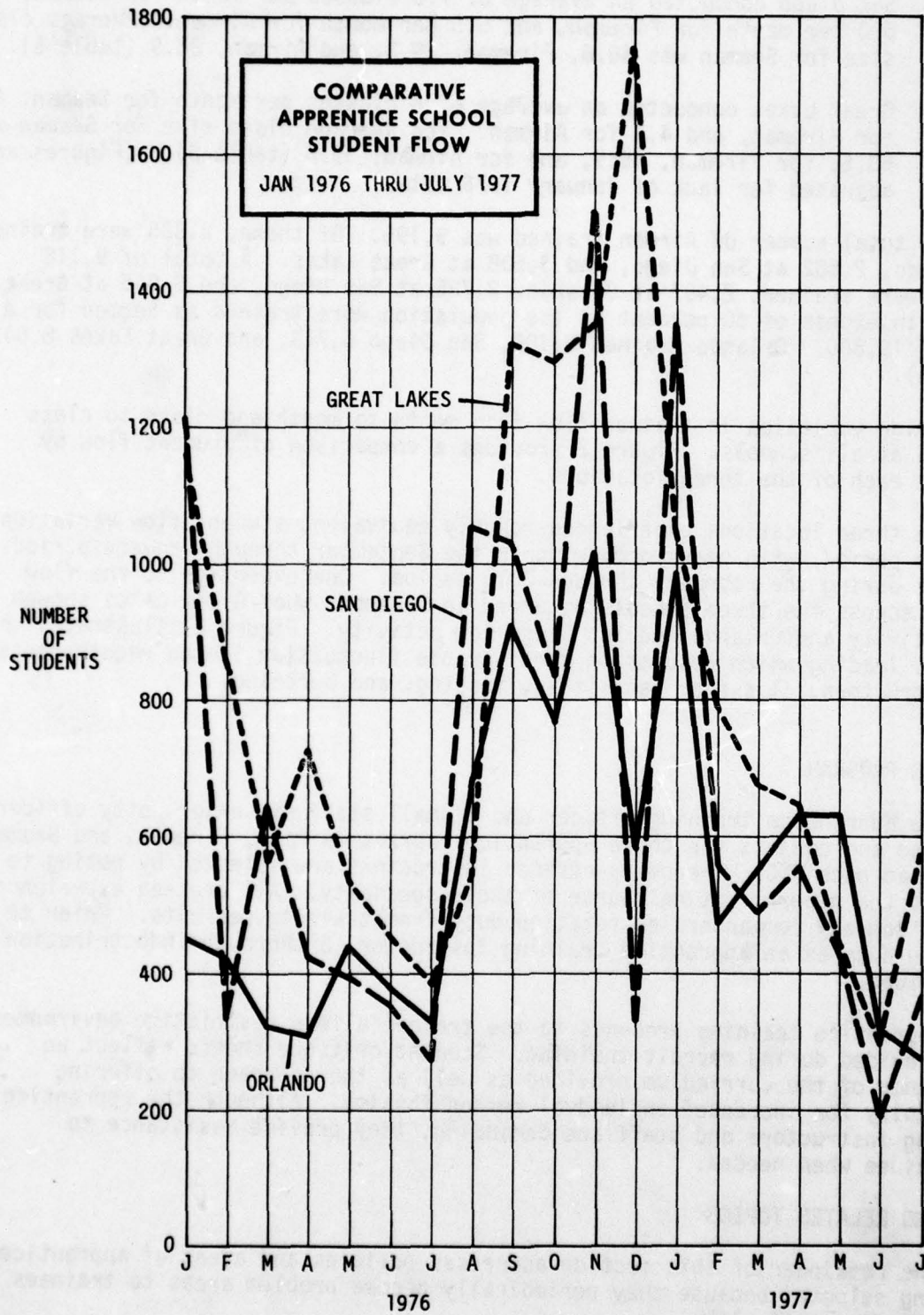


Figure 2. Comparative Apprentice School Student Flow

RULES AND REGULATIONS. An ongoing training problem results from confusion concerning rules and regulations. Sometimes apprentice training personnel must follow apprentice training directives; at other times, RTC directives. This condition reflects two different training programs operating in proximity.

ATTRITION POLICY. The present attrition rate across training centers is slightly in excess of 1 percent. When apprentice training was initiated, the policy was zero academic attrition and a judicious use of set-backs.²⁰ The set-back procedure was to be used with caution and in conjunction with compulsory instruction (nights and/or Saturdays). A later communication permitted academic attrition.²¹

SET-BACK POLICY. The set-back rate seldom exceeds 3 percent. The decision to set back a trainee is based on one of three factors. It may be failure of a weekly test, an average of all test scores, or an average of the two weekly tests. Variability exists across training sites. A set-back trainee is required to repeat one full week of training.

DISCHARGE POLICY. Apprentice trainees were discharged under special regulations applicable to recruit trainees prior to 15 September 1977. After that date, regulations applicable to discharge of "A" school personnel were directed.²² The action supported the Catalog of Navy Training Courses (CANTRAC) recognition of apprentice training as an "A" school.²³

REPORTING AND INDOCTRINATION. Reporting to apprentice training is a straightforward process. Upon completion of recruit training and checkout procedures, the trainee transports himself and his gear to the apprentice training area. Upon arrival, he is checked in, issued a bunk, and assigned a duty watch section. An indoctrination briefing is held each day for newly arriving trainees.

FORMING CLASSES. Three different methods for forming classes are in effect. Orlando starts on Monday with a follow-up "Commander's Briefing" conducted on Thursday preceding start of school. More than one section may be formed if loading requires. San Diego starts class on Thursday with additional classes starting on any day loading requires. Great Lakes starts a class whenever loading dictates.

WATCHSTANDING. Watch bills are established primarily for security and fire watch. Three section watches are policy at Orlando and San Diego. Great Lakes operates a two section watch bill and includes JOOD duty.

²⁰CNTECHTRA 1tr Code 3111 Ser 312, 19 Jul 72

²¹CNTECHTRA 1tr Code 441 Ser 454, 16 May 73

²²CNTECHTRA 1tr Code N621 Ser 62/89, 15 Sep 77

²³Catalog of Navy Training Courses, Volume I, Jul 77

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LEAVE AND LIBERTY. Only emergency leave is authorized during training. Liberty distance restrictions vary by command from a 25 to 125 mile radius. Watch bill, academic status, and barracks behavior are primary determinants of on-base liberty during the week and off-base liberty on weekends. The three section watch bill offers opportunity for some trainees to enjoy weekend liberty at San Diego. Policy at Orlando requires trainees to report for daily muster on weekends.

FREEDOM OF MOVEMENT. Trainees are generally restricted in movement around base as are recruits. Restriction includes use of recruit facilities except for exchange privileges at designated hours. Apprentice trainees may use designated base facilities during liberty hours. Trainees, following command policy, march to mess and to and from classes in most cases. Special routing is used to avoid contact with recruits.

UNIFORMS. Duty uniform interpretations vary across apprentice training schools. San Diego adheres strictly to the blue work uniform, Orlando permits wearing of seafarer dungarees, and Great Lakes requires the black and white "salt and pepper" uniform. These differences represent solutions to enhance apprentice trainee status and to distinguish apprentice trainees from recruits. Standards for the care and appearance of uniforms are universally high.

MESSING. Apprentice trainees eat in the recruit galley. Depending upon which of the three apprentice training schools is viewed, trainees may or may not be required to eat either lunch or the evening meal in the galley. Similarly, the trainee may or may not be permitted to eat at the exchange snack bar. Many prefer to eat at the cafeteria or snack bar rather than the galley. Confrontations have occurred from time to time between the apprentice and recruit trainees during messing. A recent change at San Diego provides meal passes for apprentice trainees allowing them to mess in the Service School Command side of the dining hall separated from recruits. Following the change, critique sheet responses indicated that the food was much improved although it was actually from the same galley.

BERTHING. Since apprentice trainees are housed in facilities normally used by NAVCRUITRACOM, all barracks are of the open bay type. Apprentice training management has, by location of lockers, provided a degree of individual privacy where possible, but there is little that can be done to make berthing match modern dormitories available at many "A" school sites without a major rehabilitation project. Trainees rate conditions generally good, reflecting the transition from recruit conditions. Some complaints were noted regarding noise, excessive or no air conditioning, lack of telephones, and lack of clothes washing machines. Conditions for women trainees are of greater concern. Being billeted within a female recruit barracks, although in a separate compartment, results in their being subjected to actual and perceived recruit constraints.

PHYSICAL TRAINING (PT). Physical training policies differ across apprentice training schools. While PT is included in the master curricula, it may or may not be conducted. At one location, PT occurs regularly each day; at others, rarely or not at all. There are indications that physical exercise is occasionally used as a form of punishment; i.e., "motivation training."

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INSPECTION PROCEDURES. Although inspection routines and the application of uniform regulations vary across the apprentice training schools, inspection procedures are effective. Trainees wore clean, pressed uniforms and berthing areas appeared shipshape. Apprentice training staff personnel do not hesitate to correct discrepancies on the spot.

COUNSELING. While counseling time is provided as part of the academic curriculum, formal counseling sessions are minimal. This is particularly true when class sizes are large, due to lack of time to accomplish. Counseling usually takes place on the spot as discrepancies occur. In some cases, an instructor is on duty for specific evening hours; in other cases, a counselor serves a regular duty watch. This may be a matter of semantics since supervisory personnel are on duty at all times; however, the fact remains that counseling per se is minimal and usually occurs after a problem has become acute. The majority of students do not require extensive counseling but many have a desperate need for all the guidance they can receive. Instructors, although not formally trained counselors, extend themselves to be available to trainees seeking advice. Senior supervisors handle the more severe trainee problems.

MOTIVATION. Student motivation is the single most difficult task articulated by those conducting apprentice training. Trainees want 2 weeks leave following recruit training and feel discriminated against because they do not get it as do "A" school designated personnel. This situation is perceived by trainees as unfair treatment.

RECREATION. Recruit training recreation facilities are restricted to off-duty apprentice training use while base facilities are generally available. Uniform wearing policy for departure from apprentice training area discourages athletic activity not appropriate for the Uniform of the Day since few athletic facilities have adequate lockers to secure such attire; i.e., softball, volleyball, basketball, etc.

EXCHANGE FACILITIES. Apprentice trainees have access to base exchanges and restricted use of recruit exchange facilities. Normal purchases such as books, clothing, and record players are unauthorized items in apprentice training billeting areas. The problem of purchase, storage, security, and disposition of unauthorized items by trainees exists.

CURRICULUM DEVELOPMENT. Apprentice training lead schools are currently responsible for curriculum development and changes to existing curricula which are submitted to CNTECHTRA for approval and publication. The lead school for the Airman is San Diego; for Fireman, Great Lakes; for Seaman, Orlando; and for Constructionman, NAVCONSTRACEN, Port Hueneme, California. Schools may submit curriculum change requests to the lead school. When apprentice training was initiated, a task analysis was requested for the Seaman, Fireman, and Constructionman apprenticeships and for revising advancement qualifications to reflect the findings of the analyses.²⁴ A later decision modified the requirement to

²⁴ CNO ltr OP-991D2/lcm Ser 68P991, March 1972

initiate the advancement qualifications portion of the project first.²⁵ No evidence of completion of a formal task analysis related to apprentice training could be identified.

COMMUNICATION ACROSS APPRENTICE TRAINING SCHOOLS. There is little interchange of information from one apprentice training school to another. Instructors feel that they are not kept sufficiently informed on changing technology. Responsibility for this function is not clearly defined.

TRAINING STRATEGIES. Training strategies have evolved differently across the three apprentice training schools. For example, at Orlando and San Diego, assignment of instructors is essentially that followed by an "A" school; i.e., instructors are assigned certain phases of the subject matter to teach, usually those with which they are most familiar. At Great Lakes, the instructor assumes the role of a company commander, is assigned to a class, and instructs the class throughout the entire training program. For the most part, apprentice training follows the traditional lecture/demonstration method, supported by audio-visual media and some training aids. Each course is essentially an expanded version of information contained in a particular rate training manual presented in a formal military environment. San Diego has developed "phase supporting" classrooms; i.e., training support materials and display boards relating to a particular phase of training are consolidated to provide a functional training setting.

NOTE-TAKING. Trainees are expected to take copious notes in class. Instructors cover the material slowly for this purpose. The procedure slows presentation and sometimes makes it difficult to cover the entire lesson within allotted time.

CLASSROOM DISCIPLINE. Classroom discipline is well maintained in apprentice training. Classroom procedures are sometimes disrupted, however, by trainees entering and leaving classes for a variety of administrative and personal reasons which may or may not be valid. Adequate break periods are provided.

STUDY HALLS. Trainees failing quizzes and tests may be required to attend compulsory study sessions. Space is provided in the barracks area for 2 hours of voluntary evening study at one training site with a regular instructor on duty. Another site has no special area or time set aside for study, following the theory that individual responsibility must be learned. At another site assistance was usually available in the berthing area with an instructor on duty for a 2-hour period or a counselor having regular barracks duty. There are no universal standards for either voluntary or compulsory study.

TRAINING AIDS. Sufficient numbers of transparencies and films are available. Approximately 25 percent of the transparencies and 50 percent of the films are utilized. Many transparencies are poorly designed for information display and/or readability. When forms are reproduced on transparencies, they are often too small for viewing in the classroom. Motion pictures were generally

²⁵ BUPERS 1tr PERS-A3a1-pcg Ser A3a/111, April 1972

worthwhile, but outdated. Outdated films require excessive classroom time to provide updating information. Replacement of old and damaged films is a major problem area. Audio-visuals are normally used as supplemental data rather than part of an integrated learning process. The quantity, quality, and types of training aids differ from one training site to another. Most aids are "cast offs" from "A" schools or have been constructed from parts and materials acquired from various sources.

PERFORMANCE TRAINING. There is very little "hands-on" training being conducted. While there is a "shop" of sorts at each activity, either the constraints of funding for parts and supplies or the size of the classes usually preclude much more than demonstration and explanation. This applies even to the relatively inexpensive practice of knot tying for Seamen and valve packing for Firemen. San Diego is better prepared to provide performance training in terms of on-hand materials and equipment available due to Fleet access.

INSTRUCTORS. The apprentice training instructor is a graduate of both Instructor Training (IT) and Company Commander (CC) schools and is frequently rotated between apprentice training instructor duty and recruit company commander duty. Instructors are observed and evaluated once a month. The areas evaluated are indicated on CNTECHTRA GEN 1540/42 (Instructor Evaluation Record) and 6ND RTC 1500/5 (Guide for Observation of Classroom Instructional Periods). Almost all trainees were highly complimentary regarding instructors; rating them as highly qualified, concerned with trainee progress, and capable of creating interest.

Class sizes over the past 18 months have ranged from 10 to 150. When the instructor/trainee ratio reaches 1/100, training capability is seriously hampered. At such times there is little hands-on training attempted and a reduction in trainee-instructor interface and counseling occurs.

PROGRESS TESTING. Trainee progress is measured by daily quizzes and two weekly tests. Each weekly test covers instruction for that week only. Results are converted to the 4.0 grading system and reported to the class anonymously by billet number. Different apprentice training sites have either test item banks from which they construct their examinations or have existing alternate test forms. At one site the RTC Standards-Evaluation Division administers the progress tests and results are then analyzed by the apprentice training division to determine trainee problem areas.

TRAINING FEEDBACK. At the present time, feedback to the apprentice training schools from Fleet sources is limited, consisting primarily of informal input from newly assigned instructors reporting after Fleet assignment for recruit company commander training. Formal feedback is limited to occasional major command releases.

Internal feedback; i.e., the evaluation of student progress toward instructional goals, is accomplished through daily quizzes, weekly tests, and, to a limited extent, performance testing. In addition, test item analysis is used to provide a measure of effectiveness of test construction and classroom instruction.

SECTION IV

ANALYSIS AND RECOMMENDATIONS

This section delineates training areas identified during the course of this study requiring attention. Recommendations for both short and long term application are offered for optimizing the training program.

TRAINING OBJECTIVES

The apprentice training program as presently conducted essentially provides orientation training for three distinct rating groups. For the most part, a trainee learns the purpose of the system, the functions of the components he is to service, and how the output of his efforts contribute to overall system functioning. In short, the trainee gets a general concept of how he will do his job and a preliminary picture of the layout. This training meets the original intent of apprentice training.

There is, however, a consensus among training and operational personnel that the apprentice trainee should be trained to a level wherein he can perform a number of skills with minimal supervision. This corresponds to projected future Navy needs and would require basing the course on task analysis. In addition it would require other resource allocations in the form of time, personnel, and training support.

CURRENT TRAINING PROGRAM

The data compiled clearly indicate that three quite different programs of apprentice training exist at three separate locations and within each of these, conduct of the three courses (Airman, Fireman, and Seaman) differs. There are differences regarding the length of class periods, assignments of instructors, physical training, compulsory study and classroom procedures. Some of these differences seem trivial and taken alone probably have little effect on the quality of training. The cumulative effect, however, has serious consequences for the quality of output, the effectiveness of management, and the morale and motivation of staff and trainees alike. Due to physical differences in the training plants, climate, etc., there will be some differences in the training program; however, greater standardization would be advantageous to the training system.

There is little question of the value of the present training; however, time has overtaken apprentice training and training design changes would bring the program more in consonance with current and future operational needs. The present apprentice training system relies heavily on lecture. There is very little demonstration or hands-on performance training. Classes are often too large for individual attention. It is likely that a great deal of what is taught fails to transfer to the job setting. There are a number of reasons for this. The reading comprehension level, for example, ranges from the 5th to the 12th grade level. The amount of material presented via the traditional lecture, note-taking approach, which requires extensive memorization of facts, is of doubtful value to a large percentage of the trainees. Trainee goals

are ambiguous. The trainees include (1) a number of persons choosing the apprentice training route because they want to be free of the academic type environment they just left in high school, (2) some who could not qualify for "A" school, and (3) some who want to delay the decision of rating choice until they acquire more information. Motivation is often a problem. The General Detail (GENDET), unintentionally, is made to feel like a second class citizen from the time he starts recruit training. Until recently, he was last to be interviewed during classification procedures. His "peers" point out to him that he is going to "dummy" school. When his "peers" graduate recruit training and leave for home, he stays behind and pulls clean-up detail or other duties. After an average 5-day wait, he attends 2 weeks of apprentice training getting just enough privileges to make him aware of those enjoyed by his "A" school contemporaries. Depending upon the geographical location of his training, he finally gets leave after 11 to 12 weeks of continuous training. It is questionable whether such an individual is motivated to work toward a successful Navy career.

DESIGNATION AS CLASS "A" SCHOOL. The location of apprentice training within the recruit training complex is a cause for concern. Two training programs, perceived as incompatible, coexist on a single piece of real estate. Recruit training is primarily concerned with a smooth transition of civilians into Navy personnel with good order and discipline a major training goal. The goal is achieved primarily through rigid and restrictive rules and regulations. Apprentice training, on the other hand, has as a purpose, the introductory skill and knowledge job training of GENDETS. This is in essence advanced training on a par with "A" school.

When apprentice training was initiated in 1972, it appeared logical and practical to place the function within the RTCs. A new program with minimal planning time and restricted resources was being implemented to immediately follow recruit training. During the ensuing 5 years, however, apprentice training has outgrown its "pilot program" status and the value of the training is universally recognized within the training community. The consensus of training personnel is that apprentice training should be physically disassociated from recruit training for the betterment of both training programs. No major sunken investment in terms of facilities or major training devices directly associated with apprentice training could be identified which would preclude physical relocation.

The Catalog of Navy Training Courses (CANTRAC), Volume I, lists apprentice training as an "A" school and states "recruit training does not include apprentice training." Volume II lists Constructionman apprentice training which is currently inactive, as an "A" school. However, apprentice training for Airman, Fireman, and Seaman ratings remains in an ambiguous status--neither recruit training nor "A" school training. Apprentice training should be designated "A" school training for GENDET personnel.

TRAINEE THROUGHPUT. Quota control of training input is virtually nonexistent reflecting directly the rises and falls in the recruit training population.

Class sizes may range in number from a minimum of 10 students during the late spring and summer with classes starting every other week, to 80 or more students during the late fall and winter with classes starting 3 or 4 times per week.

Logistics problems are encountered during periods of peak loading in terms of billeting, instructional personnel required, supervision of trainees, and administrative support. High overload conditions overtax the training system. Instructors are pulled from other duties to take up the slack and some programs are cancelled or delayed until the crunch is over. Naval Training Center and RTC personnel respond in an exemplary manner during such times to somehow get the job done. Despite the dedication and extremely long duty hours of experienced personnel, training effectiveness drops during peak load periods, if for no other reason than lack of instructor time to devote to individual students. Level loading would solve the problem. Some method of smoothing the loading to correct for staggered input needs to be devised.

TRAINEE CHARACTERISTICS. Apprentice trainees have a wide range of capability and these individual differences should be considered in devising training strategies. For the most part, "A" schools train for a specific occupational rating and the input to these schools are high aptitude personnel, alike in their abilities and occupational goals. This is not the case with apprentice trainees. The apprentice trainee may be at the high end of the capability curve, having delayed the decision of rating selection, or he may be at the low end, unable to meet stipulated qualifications for "A" school entry. When training such a mixed group, an approach to mastery of sequential training modules based on trainee abilities would contribute significantly to the quality of graduates. Utilizing this approach, those who could complete training on or ahead of schedule would be permitted to do so, while those who could not would be given time to master individual modules in the curriculum.

INSTRUCTOR QUALIFICATIONS. The technical nature of training for apprentice trainees calls for the same instructor qualifications as for "A" school instructors. There are two major requirements. First, the instructor should be well versed in training techniques (IT qualified) and, second, the instructor should be knowledgeable in his occupational field. The fact that the instructor has additionally served as company commander may be a plus factor, but it is of minor importance to training in the classroom.

The practice of rotating instructors every 6 to 8 months, while providing greater flexibility for management in personnel assignments, is probably deleterious for training. The instructor barely becomes proficient in handling the subject matter when he is relieved. This is especially true during peak recruit loading when the assignment is often measured in weeks instead of months. Stabilization of the instructor duty assignment would prove beneficial to the program. All instructors observed were male. This program provides a good opportunity to utilize women instructors, when available.

The assignment of NEC 9508s (Company Commanders) as apprentice training instructors may be an inefficient use of personnel in short supply. Certainly, NEC 9502s (instructors) could handle the academic program. It may be desirable to have NEC 9508s in the berthing areas. Some investigation is warranted to determine the proper ratio of instructor NECs, trade-offs, and cost-benefits.

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CURRICULUM REVISION. The modification of curricula is the responsibility of lead schools at each of the three RTCs. The published procedure appears adequate, but in actual practice it has not been responsive despite best efforts of an undermanned CNTECHTRA staff to assist. Funding and manpower shortages, coupled with lack of a clear cut curriculum change system, have resulted in curriculum updates running well behind planned schedules.

TRAINING AIDS. Standardization of training aids and equipment across apprentice training schools is one of the requirements to achieve standardization of training. Inventories of accountable training aids and equipment are maintained. Much of the training support material being used in classroom instruction, however, is nonaccountable, being locally devised or manufactured. Some items are excellent in support of training; others, less than adequate. The net result is inconsistency in kinds of training support materials being used across schools. This is accompanied by a lack of training support funds to maintain those items not accounted for in inventory.

Priorities for acquisition of training support equipment and material have been historically low for recruit training which includes apprentice training. Command attention will be required to alleviate the condition. A general screening of all aids, devices, and audio-visual materials on hand should be made to determine what is required to accommodate the current program. For example, the number of films on hand is in excess of what is required for the present program. A few up-to-date films, integrated with the curriculum content would better serve the learning process.

FORE AND AFT. Instructors expressed disappointment in the lack of classroom participation and enthusiasm on the part of trainees. By way of improving the situation, a training strategy of "fore and aft" is recommended. This involves the assignment of reading material preceding the instructor presentation. Currently, within apprentice training, a lecture given on new material is usually followed by a reading assignment on the same subject matter. Since the trainee's first acquaintance with the material is at the time of the instructor presentation, he does not have enough familiarity with the subject to participate in classroom activity. When the next class meets, he may find the instructor too busy or engrossed in the material to be covered that day. If reading assignments were given prior to (fore) the classroom presentation (aft), trainees would have some familiarity with the material. This strategy would increase participation and trainee questioning, thereby facilitating the learning process. Instructor presentations would move along at an improved pace (since he will do less repeating and can move at a faster pace) and much trainee note-taking would be eliminated. The instructor would be in a better position to assess trainee capabilities and monitor class progress. The result would be improved morale for trainee and instructor alike.

LENGTH OF TRAINING. The training community favors lengthening the training course. This is based primarily on a belief that training should be accomplished in greater depth with additional "hands-on" training. Any change in this direction should be based on task analysis. The development of Naval Occupational Task Analysis Program (NOTAP) data holds promise for the future in this area.

The planned (1978) increase in course length for Firemen apprentice training would further complicate a difficult situation in terms of RTC resources, particularly in the area of berthing availability. A new training location may be required when this proposal is implemented. For curriculum development purposes, it should be noted that equipment available for training at Great Lakes (lead school) is not available at the other training sites.

COMMUNICATIONS. Communication across schools is minimal. A formalized method for improving communication would correct the problem. It may be advantageous to schedule periodic visits from the lead schools to the satellite activities. An alternative could be a periodic printed "flier" from CNTECHTRA or the lead school to keep everyone informed of changes in procedures and technology.

SUPERVISION. Incidents of laxity or inappropriate supervision were noted during this study. It is realized that these incidents occur in any setting. It is also realized that the best efforts of a number of responsible leaders over a period of time can be quickly undone by one careless undisciplined supervisor. The point is, that during periods of low senior enlisted or officer supervision; i.e., evenings and weekends, extreme care must be exercised to insure that qualified and properly briefed supervisory personnel are standing the watch. As for classroom supervision, trainees should be permitted to leave the room only when necessary so that minimal disturbance is created in the classroom. With proper utilization of break periods, there should be minimal disruption during class periods.

"A" SCHOOL ACADEMIC DROPS. A pilot program for "A" school academic drops was initiated as a direct result of the August 1977 Motivation Conference held at CNTECHTRA, Memphis.²⁶ The program cycles academically unsuccessful "A" school (BE&E) students through Seaman apprentice training. This program represents an innovative attempt to salvage invested training dollars in the form of useable manpower. This is over and above any humanistic payoffs being derived for the Navy in the form of offering a second chance to the initially unsuccessful.

The capability of recycling "A" school dropouts through apprentice training has considerable merit and should be considered in the redesign of training. The placing of "A" school trainees in the restricted recruit environment could cause difficulties, and modification of existing regulations may be required to accomplish this goal. However, this should not be a deterrent. The effort would be worthwhile if it can be justified as a procedure to help reduce overall attrition of first-term enlistees.

²⁶ Commander, Naval Training Center, Great Lakes, message 222134Z Sept 77

SETBACK AND ATTRITION. The attrition rate for apprentice trainees is slightly in excess of 1 percent. This is in keeping with current policy. The consensus of instructors is that there is no reason for academic attrition and that attrition for apprentice trainees is a matter of motivation. Currently, a trainee failing end-of-week tests is recycled and repeats the entire week of training. While academic failure is minimal, a time savings could be realized if the trainee repeated only those areas failed.

MOTIVATION. Motivation is the single most critical problem area identified by apprentice training instructors. Adjustment to the Navy way of life may be hindered by the enlistee's perception of the treatment he receives early in his career. Each enlistee expects recruit training to be demanding and equally expects that upon completion of this basic training all sailors will be treated equally and fairly. For example, because of delayed leave following recruit training, apprentice trainees feel they are being discriminated against. Added to this is the perception of continuing status as recruits during apprentice training. Apprentice training managers and instructors combat these two negative influences to the best of their ability but can only be partially successful at best. Another concern to trainees and instructors is a lack of agreement on standards and earned privileges. Trainees given certain privileges by instructors may be denied those privileges for infractions at the barracks level. The instructors note consequential lack of interest in academic excellence. Closer liaison between the two factions may be beneficial.

Training in subject matter presentation alone does not insure that instructors will stimulate excellence of performance on the part of trainees. Trainees must also be motivated to look upon the training as desirable, necessary, and worthy of extra effort. Recognized motivators include pride in achievement, recognition of accomplishments, challenging tasks, increasing responsibility, and recognition of growth and development as a member of the Navy team. A sincere belief by the instructor in the dignity and worth of the individual in achieving success in his learning activities is a powerful stimulant to trainee performance. This is especially critical when training the disadvantaged or low achiever. The training process for these individuals can be frustrating and it is easy to forget that they need to feel worthwhile to the organization. The trainee must be involved in the instructional process; he must be convinced that he has the resources to succeed. Opportunity to succeed is an incentive, and success is a reward. This may be accomplished by instructional design which offers a series of discrete tasks of increasing difficulty. Experience has shown this can better be accomplished in a "hands-on" or shop type environment where confidence and capability are developed simultaneously.

Equally important to motivating trainees is removing influences that are demotivating. The delay of leave until completion of apprentice training is difficult to justify in face of the problems it creates. This delay for apprentice trainees, while their peers are authorized leave, probably does more near-term and long-term damage to 25,000 trainees' perception of the Navy each year than any other single influence. Graduation from recruit training is a pivotal point in a Navy enlisted career. Training was expected to be tough, was successfully completed, and all should get like reward. Being treated as "second class citizens" is the perceived role of the majority of apprentice trainees. This is considered to have an influence on first-term enlistment attrition.

Industry utilizes a form of motivation called "Contingency Management" which is applicable to the Navy. This is a system of incentives and rewards for productive behavior. Enough is known about the subject to say that rewards do motivate. Presently, there are few observable, short-term benefits to motivate the apprentice trainee. If he makes an overall grade of 3.0 and "stays out of trouble," he will graduate and a service record entry will be made to that effect. The following techniques, some of which are currently used by various Navy activities, might be considered for application in apprentice training:

- . provide opportunity for success in training by curriculum design
- . recommend those who demonstrate capability for an "A" school assignment
- . place a letter of commendation in the jacket of the top achievers, send a copy to the home, and the hometown newspaper
- . check off on the Personnel Advancement Requirements form those areas in which proficiency has been demonstrated
- . permit special liberty or relief from certain duties for top performance
- . use "peer recognition" by permitting those who excel to act as peer instructors and to demonstrate procedures in the classroom or shop area
- . permit those who can pass the final proficiency tests to graduate early.

It is not enough to make these benefits available to the trainee; he must be informed at the beginning of training what he has to gain by meeting the expectations of management. This is a critical element in the motivational plan--complete understanding on the part of the trainer and trainee as to what rewards will be delivered following certain acceptable behavior.

TRAINING REDESIGN

There is a consensus among those contacted that apprentice training should move further in the direction of skill training. Below are some considerations for the redesign of training over the long term.

TRAINING ENTRY. Trainees enter the system directly from recruit training. Often the training load is small and trainees must be placed in holding status until the convening of a class is worthwhile, or, there is an overload and facilities and personnel are taxed to handle the large numbers of trainees. Trainee entry into the system should be more flexible. Figure 3 illustrates schematically a free-entry trainee input. A number of training modules would be developed. Each would be content independent. Trainees would enter training upon arrival, rather than being required to wait until the beginning of the week when classes normally start. They would complete each module in the training cycle and leave the training system. In this way, trainees would be entering and leaving training daily and the peaks associated with present loading would be smoothed,

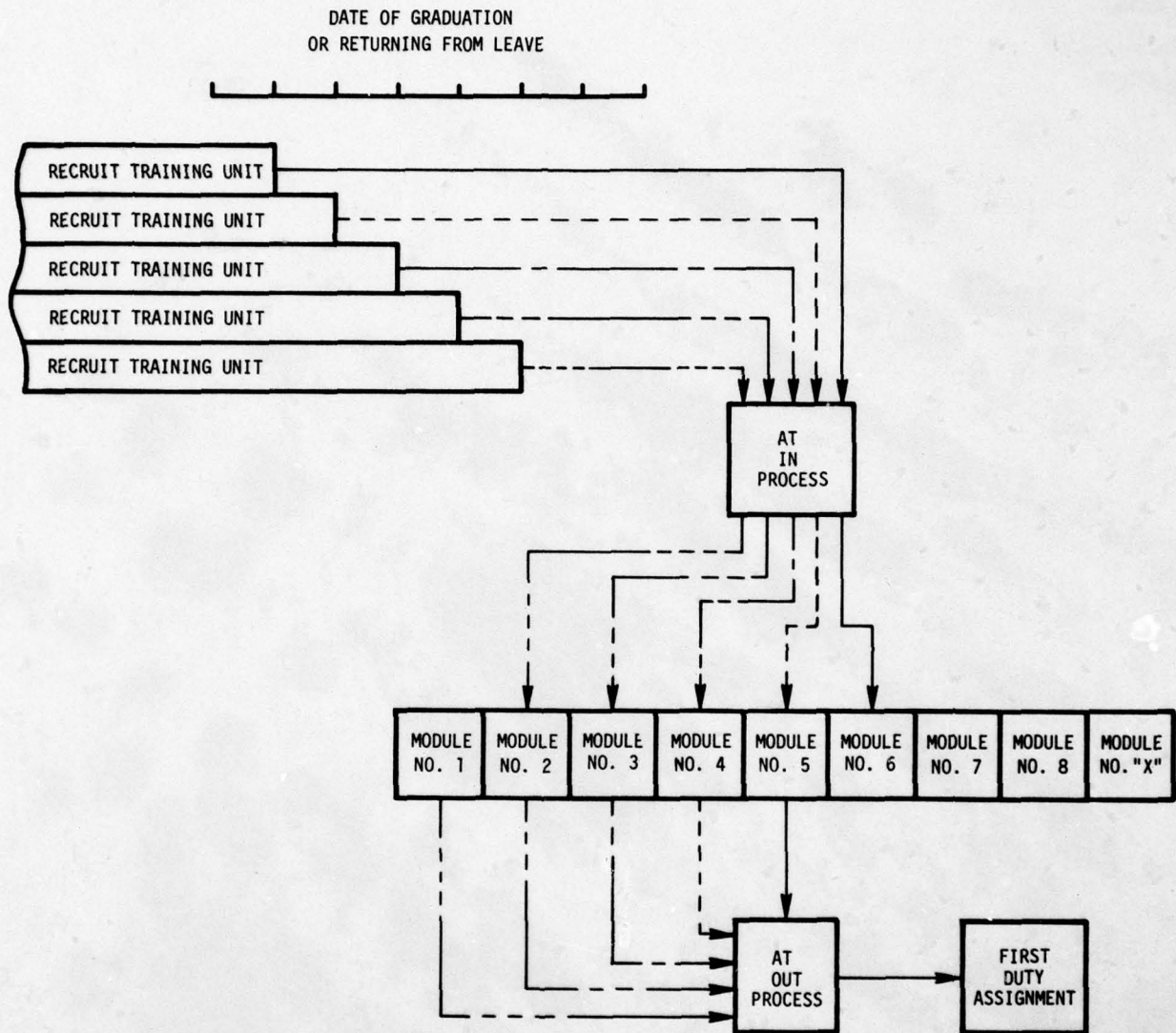
placing less strain on resources. A number of details would require working out, but, theoretically, significant improvement could be made. The ground work is already laid in that there are no group graduation exercises, the pipeline requirements (i.e., assignments and travel arrangements) are usually accomplished by the 2-3 day of training, the success rate is high, requiring few set-backs, and the current curriculum has been developed, for the most part, in discrete training blocks. There would be several advantages: (1) the time lag between recruit graduation and apprentice training class starts would be shortened and training support facilities and personnel could be used more efficiently, (2) the AOB for any specific time period would be reduced, placing the trainee in the Fleet on the average of a week sooner (giving an additional cost benefit), and (3) the trainee could look forward to going on leave sooner, resulting in an improvement in morale.

PERFORMANCE/PROFICIENCY-BASED TRAINING. Demographic information for the 1980s supports the viewpoint that more apprentice-type training will be required to adequately man the operational Fleet. As the manpower pool decreases during the early 1980s, a logical forecast can be made that the armed services will be forced to enlist an increasing number of marginally qualified personnel. These persons learn more easily by means of performance training. Apprentice training will be required to move further toward the 'hands-on' vocational-technical (VOTEC) approach to training of these people in order to meet manpower requirements.

The mixture of ability levels and the generally low reading ability of trainees would make a performance approach to training more beneficial than the present lecture method. The lecture method places too much emphasis on rote memory and retention of concepts. Realistic operational situations, which require problem-solving behavior or the application of skills, would produce learning which is longer lasting and more easily transferable to the job.

In addition to performance training, demonstrated acquisition of the skill would be accomplished by proficiency-based testing. A savings could be realized when the trainee is recycled through only those modules he failed to comprehend, rather than through a complete week of instruction. The combination Free Entry, Performance/Proficiency-Based strategy would provide the advantage of flexibility for group instruction while eliminating most of the disadvantages of the present two part (weeks 1 and 2) training approach. The modular/block approach (figure 3) becomes more advantageous from the instructional efficiency standpoint as course lengths are increased.

Vocational shops might better serve as the major training vehicle in a redesign of apprentice training. Curriculum modules could be set up for progressive accomplishment of the tasks to be trained. Knowledge factors would be transmitted in the functional, shop setting; i.e., information given while the skill is being demonstrated and practiced. Step-by-step performance task outlines, illustrating procedures and providing accompanying information, could be provided each trainee and would become the property of the trainee for future use. Trainees would cycle through the shop stations as their demonstrated performance allowed. Specified limits of acceptable and unacceptable



NOTE 1 - TRAINEE CAN ENTER AT PROGRAM ANY TRAINING DAY.

NOTE 2 - AT IN-PROCESSING IS CONDUCTED EACH TRAINING DAY.

NOTE 3 - UPON COMPLETION OF IN-PROCESSING, TRAINEE WILL ENTER MODULE BEING STARTED AND CONTINUE TRAINING UNTIL ALL MODULES ARE COMPLETED.

NOTE 4 - AT OUT-PROCESSING IS CONDUCTED EACH TRAINING DAY.

Figure 3. Navy Apprentice Training Typical Free-Entry Modulized Curricula Student Flow

performance would be provided for each station and module. The method would accommodate individual differences, but would not preclude training of small groups.

INSTRUCTOR/TRAINEE (I/T) RATIO. The ratio of instructors to trainees is currently inadequate for the amount of "hands-on" training being attempted within the apprentice training program. It is a fact that to conduct performance type training, the establishment of an adequate I/T ratio is significant to training success. The ratio of instructor to trainees would necessarily have to be changed from the present 1:36 stipulated for apprentice training to perhaps 1:12 or even 1:8 for shop periods. The ratio would be directly related to the predetermined group size and nature of the task to be trained, but one instructor and one assistant would be the minima. This ratio could provide a training vehicle for instructors, since the assistant could be one who is in a training status. Note that the case for performance training should not be dismissed because of an identifiable need for increased I/T ratio within apprentice training, but analyzed, justified, and programmed on the basis of training pay-off for now and the post-1980 period.

TRAINING EVALUATION. Training evaluation becomes an inherent part of the learning process when the Performance/Proficiency-Based approach to training is initiated. Commonly called criterion testing or criterion progress testing, it is defined here to mean any testing or performance evaluation which occurs during conduct of the course, to include testing at the end of each module or block. An accumulation of progress test scores could equate to the final course grade if one is required. The criterion for completion of the course would be some predetermined number of tasks mastered within specified time parameters. A minimum and maximum amount of time to be allowed for task completion would be established. As the trainee completed each task, it would be checked off on a task list and he would move on to another task. Concurrently, a check-off would be made on the Personnel Advancement Requirements check list. In this way, the next duty station would know this person's capabilities and could make judicious assignment. This evaluation method would fulfill the original intent of apprentice training, that of minimal or no attrition, since the trainee is provided opportunity (within limits) to demonstrate acquisition of required skills and, if unsuccessful, immediate remediation, to achieve the required skill level before proceeding further in training.

This approach to testing and evaluation offers three identifiable benefits to the training process. First, counseling or remedial training can occur when it is needed because trainee deficiencies are identifiable as they occur. Second, the causes and required corrective actions for training deficiencies can be better identified because they are occurring at discrete points in the training process. Third, more opportunity is provided to evaluate the trainee overall because of the requirement for greater instructor-trainee interface during the training process.

FEEDBACK. Utilizing the VOTEC approach, internal training feedback would be a relatively easy matter since the trainee could be observed in the process of completing each task. It would be expedient at any point in time for a monitor to pick trainees at random and test their ability to complete certain tasks.

A truly satisfactory system for external feedback remains to be developed within the training community. Various forms of questionnaires, interview procedures, incoming staff comments and senior command inputs remain the best sources available. Training redesign should, at the very least, formalize the collection of information from newly acquired personnel from the Fleet. It is suggested that this valuable source of feedback be exploited through formal, structured interviews of incoming instructors, with the results distributed in the form of memoranda to staff personnel for consideration in modification, or revision of curricula. Since there is an annual turnover of instructor personnel of approximately one-third, such a program would provide a continuing source of Fleet input without direct interference with Fleet activities.

RECOMMENDATIONS

The following recommendations concern the conduct of the program within the three RTC complexes. Long-term recommendations are offered should the redesign of training become a reality. Many of the recommendations would become dead issues if apprentice training was relocated in the technical "A" school environment and all recruit training graduates were offered leave immediately following the completion of that training. The nature of local school problems noted during the investigation strongly suggests that standardization of many policies across apprentice training sites would be beneficial as an interim measure.

SUPERVISION. Standardize and disseminate regulations and policies for apprentice trainees insofar as practical across training sites. Eliminate confusion at training sites between apprentice training and recruit directives which often conflict. Make apprentice training regulations and policies compatible with the general practices associated with counterpart "A" school training activities. Ensure that all apprentice training supervisory duty roster personnel understand current procedures and training philosophy for apprentice trainees prior to assumption of such duties.

LEAVE AND LIBERTY. Allow students designated for apprentice training to have the option for leave upon completion of recruit training. Review apprentice training liberty policies to ensure equality with those of coexisting advanced training activities. This would include the wearing of appropriate civilian attire off duty.

MESSING. Establish messing procedures for apprentice trainees comparable with those of other advanced training schools.

BERTHING. Continue effort at the CNTECHTRA level for general improvement of apprentice training berthing by identification and submission of funding requirements. Arrange berthing for women trainees separate from recruit barracks.

INSTRUCTORS. Assign instructors to class presentations on a best-qualified basis by types of subject matter. Standardize instructor tours at a sufficient length to capitalize on skills acquired through experience in the classroom.

Review manning policies to provide 1:36 I/T ratio in the classroom and a reduced I/T ratio for shop, laboratory, and deck training. The ratios should be based upon safety and span of control considerations.

Utilize rating group qualified instructors NEC 9502 in lieu of NEC 9508 (CCs) as apprentice training instructors. This will provide a stabilized instructor force and result in monetary savings by eliminating Company Commander training for apprentice training instructors.

Utilize women as apprentice training instructors if rating group qualified.

FEEDBACK. Develop a formalized procedure for interviewing newly assigned staff and instructor personnel arriving from Fleet assignments. Information would be consolidated and analyzed to provide data and trends affecting apprentice training and other technical training. Develop a formal feedback system through the CINCLANT/CINCPAC.

PHYSICAL TRAINING. Institute a program of daily physical training and/or intramural sports for all apprentice trainees.

MOTIVATION. Maintain good order and discipline according to command policy, but eliminate the restrictions based upon association with recruit training. To maintain good order and discipline, include military behavior in the evaluation process. Investigate feasibility of use of rewards as motivators.

COMMUNICATIONS. Develop procedures for improved communication at the working level across training sites.

TRAINING STRATEGIES. Determine a single approach to instructional strategies within each type of apprentice training to be adopted by all schools presenting a particular course.

CLASS COUNSELOR. Designate an instructor for each apprentice training class as counselor. Provide time in the curriculum schedule for student access to counselor.

NOTE-TAKING. Develop and furnish course supporting handouts to all apprentice trainees to reduce note-taking requirements. Adopt "Fore and Aft" method of presentation and reading assignments previously discussed.

STUDY HALL. Review and standardize voluntary and compulsory study policies. Provide voluntary study areas, but assign compulsory study on an individual basis under instructional staff control.

TRAINING AIDS. Undertake efforts to determine the most effective training aids and equipments to be used in support of instruction, with emphasis upon materials and devices common to the Fleet environment and providing realistic training settings. Acquire and provide selected materials for each school to standardize instructional support. As an interim measure review audio-visual materials on board for adequacy in terms of currency, accuracy and useability to the existing instructional program. Audit on-board parts and equipment at each school for validity and application to training.

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TRAINING REDESIGN. Consider a redesign of training commensurate with Fleet requirements for the next decade utilizing Instructional Systems Development techniques.

SECTION V

APPRENTICE TRAINING MANAGEMENT OPTIONS AND RECOMMENDATIONS

Section IV of this report presented training problems identified during the on-site analysis of current apprentice training curricula and management and provided recommendations. This section addresses the necessary planning, programming, and responsibilities necessary for the optimization of the apprentice training program in post-1980. It is presented in three parts. The first part provides to Navy managers options for the organization of the apprentice training program with attendant advantages and disadvantages. The second part provides the framework for developing a Navy Apprentice Training Management Plan. Finally, actions that are considered to be essential in the development of apprentice training for post-1980 are summarized.

MANAGEMENT OPTIONS

Six options were developed addressing the management of the Navy apprentice program for the future. These are prioritized in order of their perceived value in optimizing the apprentice training program and integrating it with the total Navy training system. A number of assumptions were considered in the development of these options. The major assumptions follow:

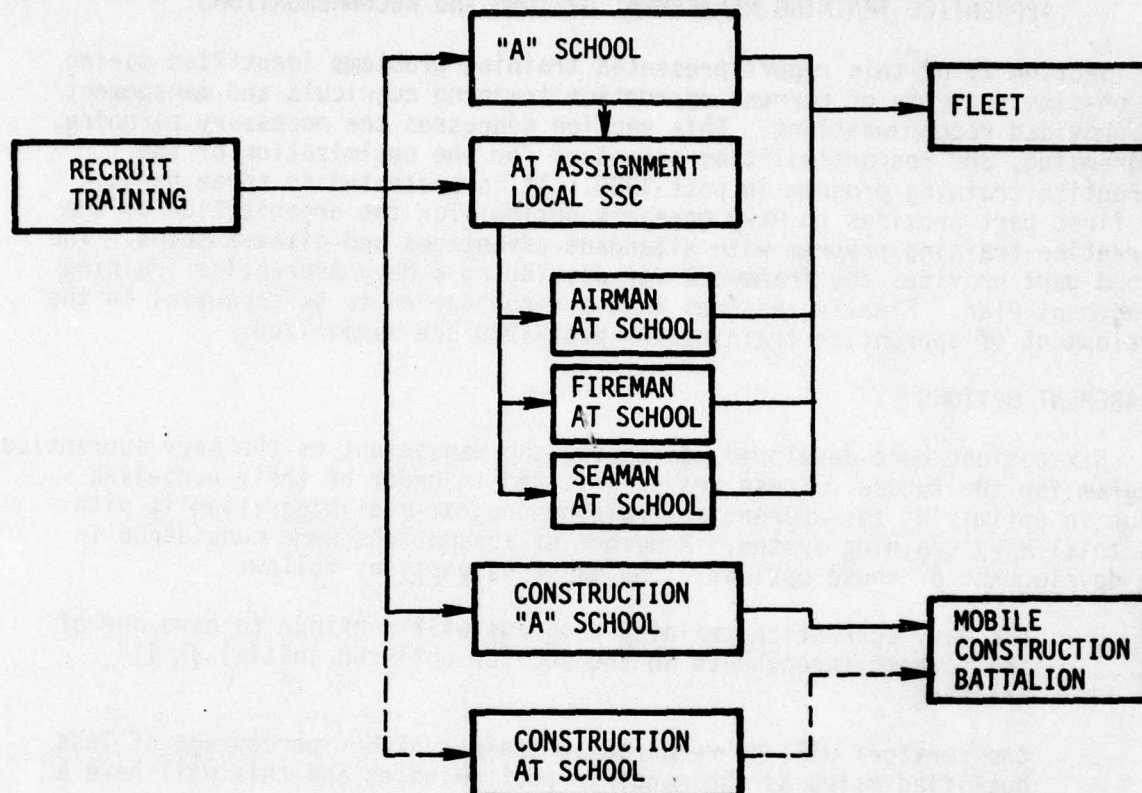
- . the Navy apprentice training programs will continue to have one of the largest throughputs in the DOD for enlisted initial skill training²⁷
- . the services will be required to train a higher percentage of less qualified males as the manpower pool dwindles and this will have a direct impact on apprentice training²⁸
- . clarification will be made in the determination that apprentice training will be designated an "A" school
- . the NAVCONSTRACEN will continue to have the capability to conduct Constructionman apprentice training
- . the utilization of apprentice training for regular "A" school dropouts prior to first duty assignment will be adopted within the Education and Training Command
- . the increased requirement and utilization of women will have a direct impact on the apprentice training program
- . regardless of option adopted there should be a training plan developed which will provide orderly implementation for the post-1980s.

²⁷ Department of Defense, Military Manpower Training Report for FY 1978, March 1977, p. V-5

²⁸ Westinghouse Electric Corporation, Potential Impact of Cultural Change on the Navy in the 1970's, Vol 4, Part III, Center for Advanced Studies and Analysis, 1 August 1972, p. 110

OPTION #1

Establish Navy apprentice training under same station Service School Command for Airman, Fireman, and Seaman. Maintain Constructionman apprentice training capability at Naval Construction Training Center, Gulfport.



PROS

- . Trainee in technical training environment
- . Service School Command established for technical training
- . Instructor stability
- . Elimination of training goal conflict
- . Capability of recycling other "A" school dropouts
- . Utilization of Service School Command established management, administration and support systems

CONS

- . Possible minor loss of billets at Recruit Training Command
- . Minor impact on rotation of company commanders
- . Minor loss of support funds at Recruit Training Command
- . Possible classroom facility requirements at Service School Command
- . Development and implementation funds required
- . Lead time required to implement

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OPTION #1 (continued)

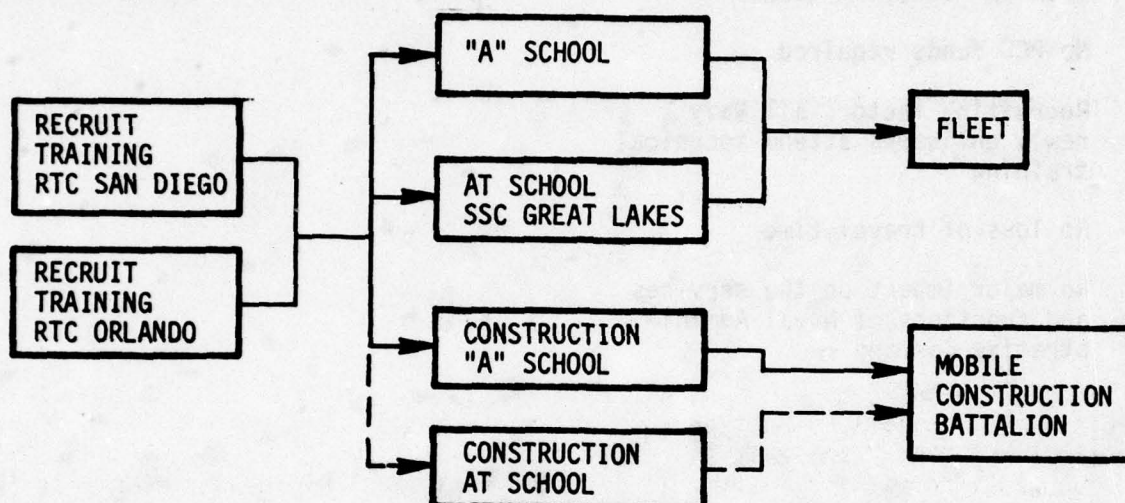
PROS

- . Elimination of segregation of apprentice training trainees from "A" school trainees
- . No PCS funds required
- . Recruiting factor: all Navy newly enlistees attend technical training
- . No loss of travel time
- . No major impact on the services and functions of Naval Administrative Command

CONS

OPTION #2

Conduct Navy recruit training at Recruit Training Commands in Orlando and San Diego. Convert present RTC facilities at Great Lakes to Navy apprentice training activity under Service School Command for Airman, Fireman and Seaman. Maintain Constructionman apprentice training capability at Naval Construction Training Center, Gulfport.



PROS

- . Apprentice training consolidated under single command
- . Trainee in technical training environment
- . Service School Command Great Lakes established for technical training
- . Instructor stability
- . Elimination of training goal conflict
- . Utilization of Service School Command and Naval Administrative Command management, administration, and support systems

CONS

- . Adjustment of billets at Recruit Training Commands
- . Adjustment of funds for Recruit Training Command, Service School Command and Naval Administrative Command, San Diego, Orlando, and Great Lakes
- . Lead time required to implement
- . Travel costs for apprentice trainees
- . Travel time for apprentice trainees
- . Modification of present Recruit Training Command facilities at Great Lakes to meet technical training requirements and billeting of trainees

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OPTION #2 (continued)

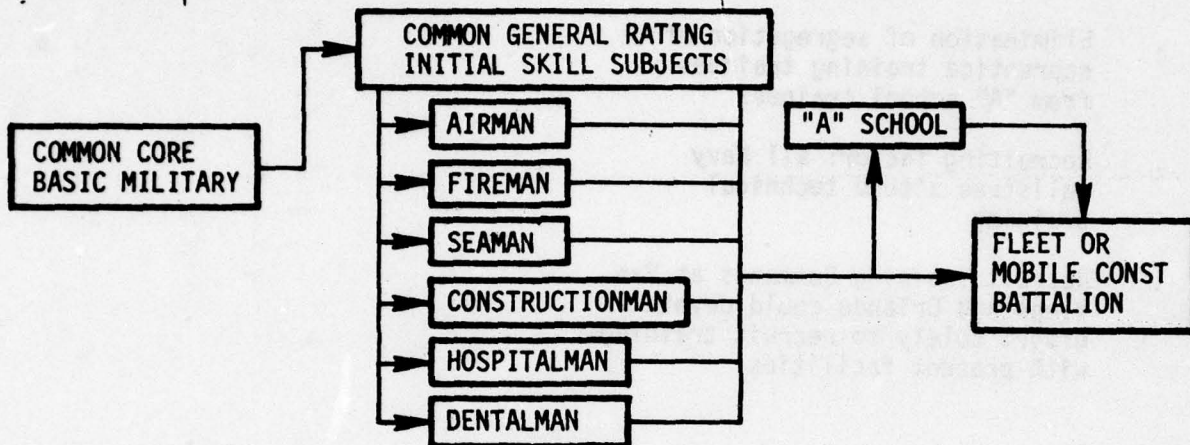
PROS

- Elimination of segregation of apprentice training trainees from "A" school trainees
- Recruiting factor: all Navy enlistees attend technical training
- Recruit Training Commands at San Diego and Orlando could devote effort solely to recruit training with present facilities

CONS

OPTION #3

Integrate apprentice training as an advanced phase of recruit training for all newly enlisted personnel.



NOTE

- . Common core basic orientation and military subjects 3 or 4 weeks in length
- . Common general rating subjects initial phase may be different lengths

PROS

- . Continued utilization of present Recruit Training Commands management, with logistic administration and support by Naval Administrative Commands
- . No increase in travel costs
- . No loss of travel time
- . Elimination of apprentice training at Recruit Training Commands
- . Elimination of training goals conflict
- . Consolidated training management system

CONS

- . Technical trainee dropouts could not be recycled
- . Increased resource requirements for Recruit Training Commands
- . Potential loss of Navy orientation time
- . Lead time required for implementation
- . Possible negative recruiting factor
- . Potential impact on classroom facilities

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OPTION #3 (continued)

PROS

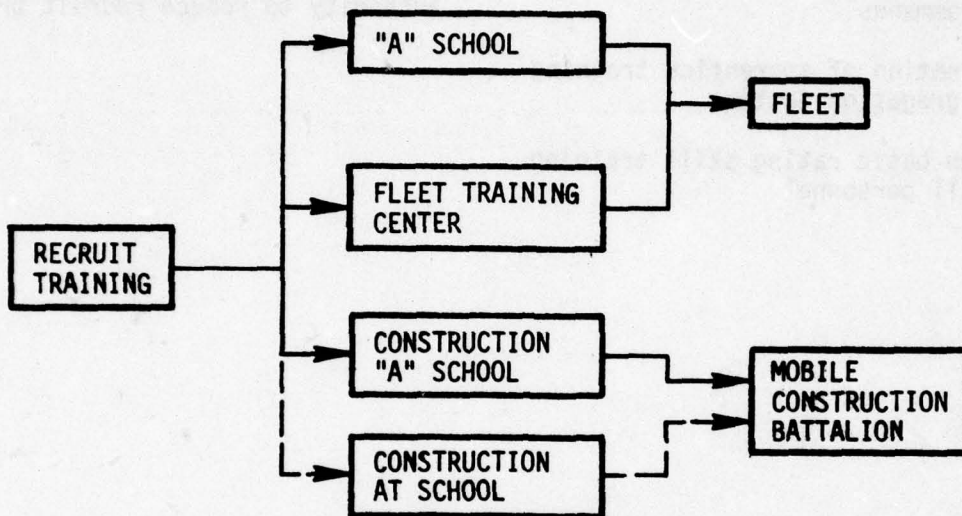
- . Reduce AOB count at Recruit Training Commands
- . Elimination of apprentice training as segregation factor
- . Common basic rating skill training for all personnel

CONS

- . Counter to current trends by higher authority to reduce recruit training

OPTION #4

Locate Airman, Fireman, and Seaman apprentice training at Fleet Training Centers. Maintain Constructionman apprentice training capability at Naval Construction Training Center, Gulfport.



PROS

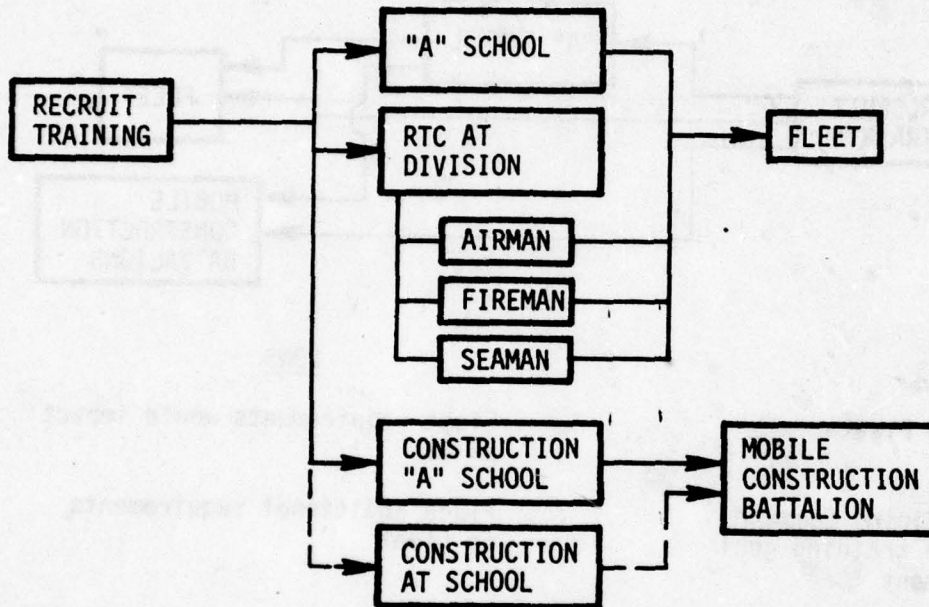
- . Training conducted in Fleet environment
- . Utilization of equipment at Fleet Training Centers
- . Reduce Fleet orientation time
- . Recruit leave for all graduates upon graduation
- . Direct Fleet feedback apprentice training program
- . Recruit Training Commands with only single training goal
- . Present Fleet Training Centers have established management, administrative and support system
- . All trainees could receive apprentice training as needed including "A" school dropouts

CONS

- . Possible minor loss of billets at Recruit Training Commands
- . Possible loss of support funds at Naval Training Centers
- . Initial technical training program not under CNTECHTRA
- . Lead time to implement
- . Additional funding and billets for Fleet Training Centers
- . Additional facility and support requirements for Fleet Training Centers

OPTION #5

Continue apprentice training for Airman, Fireman, and Seaman under the Navy Recruit Training Commands. Maintain Constructionman apprentice training capability at Naval Construction Training Center, Gulfport.



PROS

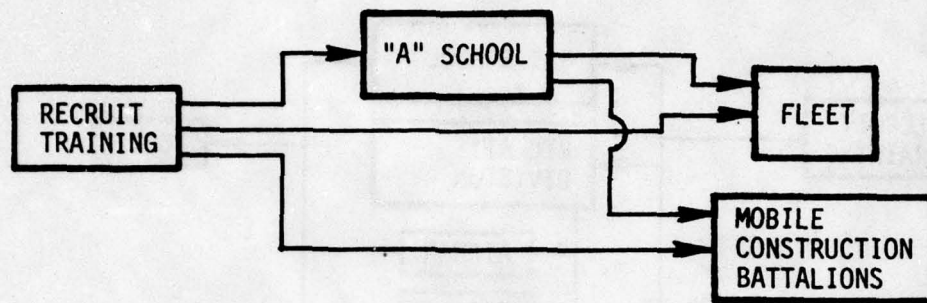
- . Dual training system currently in operation
- . No travel funds required
- . No loss of travel time
- . Less lead time to incorporate major changes

CONS

- . Conducting initial advanced technical training in restricted environment
- . Unstable instructor force
- . Recruit Training Commands must manage two separate systems with different goals and administrative procedures
- . Facilities not designed for apprentice training and berthing of trainees
- . Delayed recruit leave
- . Limited facilities for increased course length and present peak loading

OPTION #6

Apprentice training for Airman, Fireman, and Seaman conducted as on-the-job training (OJT) in the Fleet. Maintain capability of Constructionman apprentice training with Mobile Construction Battalions.



PROS

- . Training in Fleet
- . Recruit Training Commands with single training goal and management
- . Option for recruit leave
- . No facility requirements
- . Less time for non-"A" school trainee in Naval Education and Training Command
- . A number of newly enlisted personnel do not want formal training
- . Fleet provided increased input into "A" school selection process

CONS

- . Fleet requirements would impact on OJT
- . Place additional requirements on Fleet
- . Less time for newly enlisted personnel orientation to Navy environment
- . No basic training or formal training requirement
- . Long lead time to develop on-board training program
- . Non-qualified instructors
- . Would eliminate majority of women from apprentice training

NAVY APPRENTICE TRAINING MANAGEMENT PLAN

The proposed Navy Apprentice Training Management Plan (NATMP) provides the initial information and outlines key steps in the management process required to implement one of the provided options for apprentice training. The outline for NATMP has been structured in support of Option #1 for Airman, Fireman, and Seaman training. The plan does not address Constructionman since presently (1978) there is no requirement for such training. It is assumed that if training were required, the NAVCONSTRACEN, Gulfport, having previously conducted this program and having the capability to do so, would have the responsibility. It should be noted that this NATMP outline does not attempt to address all facets of planning but provides the decision maker with the essential considerations. The outline for NATMP could be adjusted to meet other options presented in this report. Based on final determination of an option to be implemented, the NATMP can be fully developed.

INITIAL NAVY APPRENTICE TRAINING MANAGEMENT PLAN

I. TECHNICAL PROGRAM DATA

A. TITLE - NOMENCLATURE: Navy Apprentice Training Management Plan (NATMP)

B. SECURITY CLASSIFICATION: Unclassified

C. NATMP PRINCIPALS:

- | | | |
|----|---------------|------------------|
| 1. | OPNAV SPONSOR | OP-099 |
| 2. | PDA | NA |
| 3. | TA | CNET (N-2) |
| 4. | TSA | NA |
| 5. | CHNAVPERS | To be determined |

NOTE: Consideration will be given to establishment of a Navy Apprentice Training Executive Committee to include OP-099 (Chairman), OP-39 (Seaman and Fireman), OP-44 (Constructionman), OP-59 (Airman), BUPERS, CNET, and CNTECHTRA.

D. OPERATIONAL USE: The establishment of Navy apprentice training in the technical training environment of the Service School Command (SSC) is the key issue for the Navy Apprentice Training System (Airman, Fireman, and Seaman) as described by this training management plan. As illustrated in figures 4 and 5, assets of the Navy are identified and their interrelationships are described to support this plan. The Navy Apprentice Training System is the vehicle through which approximately 25,000 GENDETS are assigned each year directly to the Fleet. The NATMP will provide for a timely, effective, and efficient system as follows:

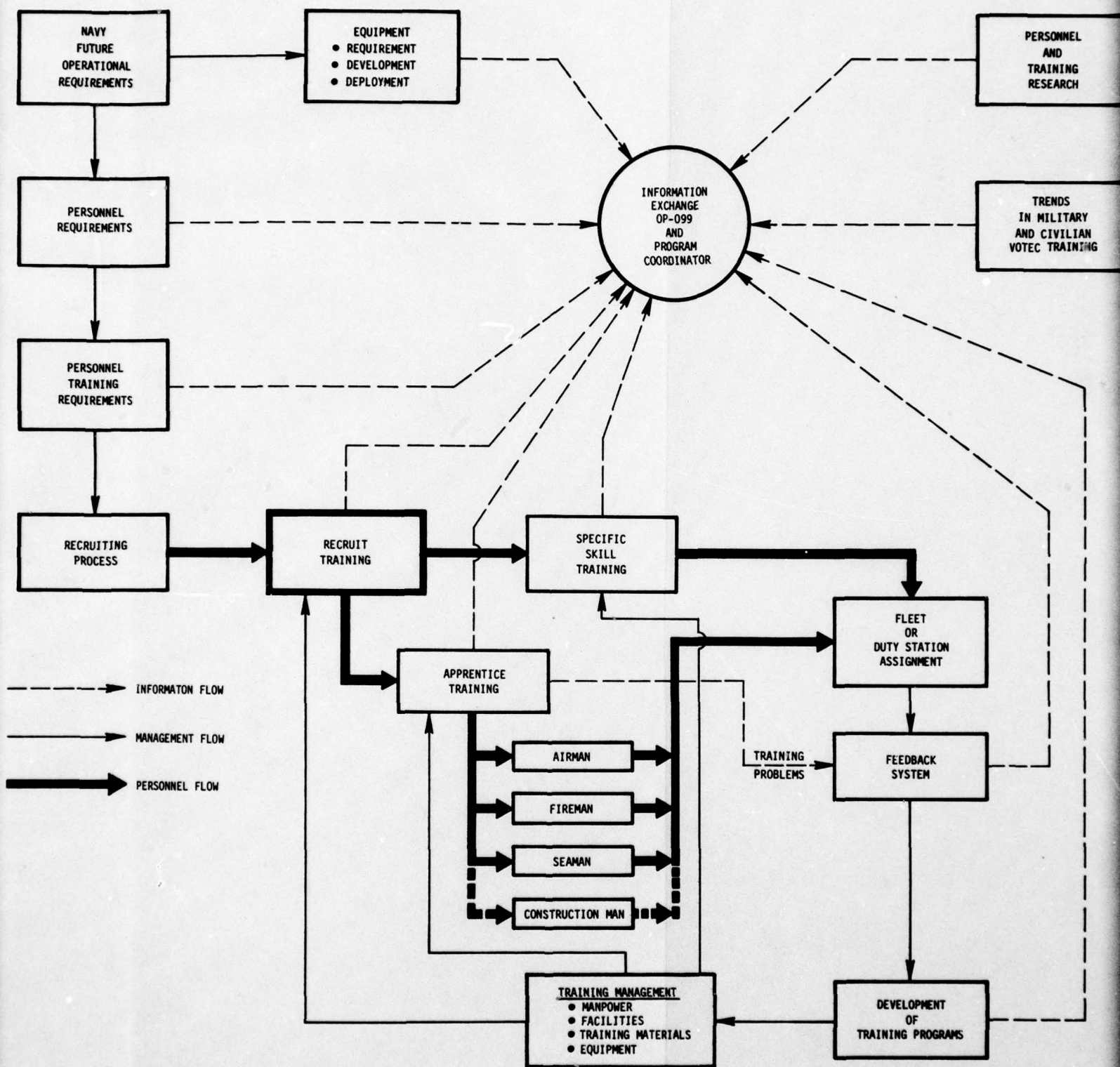


Figure 4. Navy Apprentice Training System.

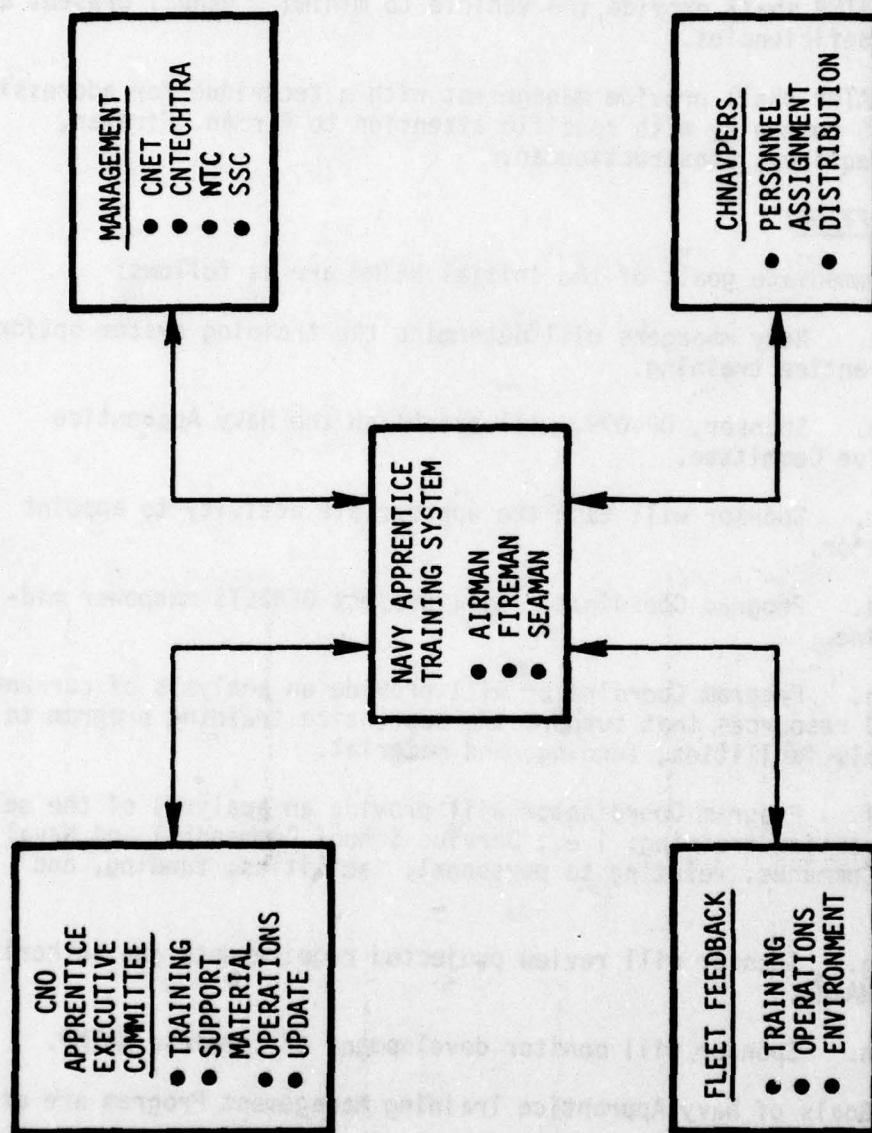


Figure 5. Navy Apprentice Training System Interrelationships.

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1. NATMP shall be responsive to changes in Fleet requirements, as relates to GENDETS personnel.

2. NATMP will not respond directly to new equipment assigned to the Fleet.

3. NATMP shall provide the vehicle to minimize GENDET present and future training deficiencies.

4. NATMP shall provide management with a technique for addressing the total GENDETS community with specific attention to Airman, Fireman, Seaman and, as required, Constructionman.

E. DESCRIPTION:

1. Immediate goals of the initial NATMP are as follows:

a. Navy managers will determine the training system option to be used for apprentice training.

b. Sponsor, OP-099, will establish the Navy Apprentice Training Executive Committee.

c. Sponsor will task the appropriate activity to appoint Program Coordinator.

d. Program Coordinator will project GENDETS manpower mid- and long-term pipeline.

e. Program Coordinator will provide an analysis of current NTC, NAC and RTC resources that support the apprentice training program to include personnel, facilities, funding, and material.

f. Program Coordinator will provide an analysis of the selected site(s) for apprentice training; i.e., Service School Command(s) and Naval Administrative Commands, relating to personnel, facilities, funding, and material.

g. Sponsor will review projected requirements and authorize development of NATMP.

h. Sponsor will monitor development of complete NATMP.

2. Goals of Navy Apprentice Training Management Program are as follows:

a. establish apprentice training in a formal technical training environment

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b. develop a training system that long term will be cost effective and efficient in meeting Fleet requirements for GENDETS personnel

c. provide for trainee assigned to the various programs; i.e., AN, FN, SN, those specific individual skills that will make him a productive member of the Fleet

d. develop a feedback system that will identify present and future training deficiencies to include:

(1) new or revised course requirements identified by the Fleet

(2) data to apprentice training community concerning operational trends that impact on GENDET personnel assignments to the Fleet.

e. provide Navy-wide visibility on the purpose of the apprentice program and type of graduate to be assigned to the Fleet

f. provide to the Commander, Recruiting Command a valid promotional program for personnel not selecting or requesting specific technical skill training.

NAVY APPRENTICE TRAINING MANAGEMENT PLAN RELATED DOCUMENTS. A summary of initial actions required under the NATMP by cognizant commands/activities is provided by an Apprentice Training Action/Activity Summary Sheet, figure 6. The information displayed is open to modification as the NATMP is more completely developed. Action statements will require expansion prior to tasking assignment. Similarly, responsible codes within major commands will require identification.

The Navy Apprentice Training Initial Management Plan Milestones (table 7) provides a sample time schedule for accomplishing actions contained in the NATMP. Both figure 6 and table 7 are accompanying documents to the basic NATMP.

RECOMMENDATIONS

The following initiatives are recommended in the development of the apprentice training program for the post-1980s:

- . remove apprentice training from recruit training influence and management
- . provide autonomy to the apprentice training programs (Seaman, Fireman, and Airman) as class "A" schools

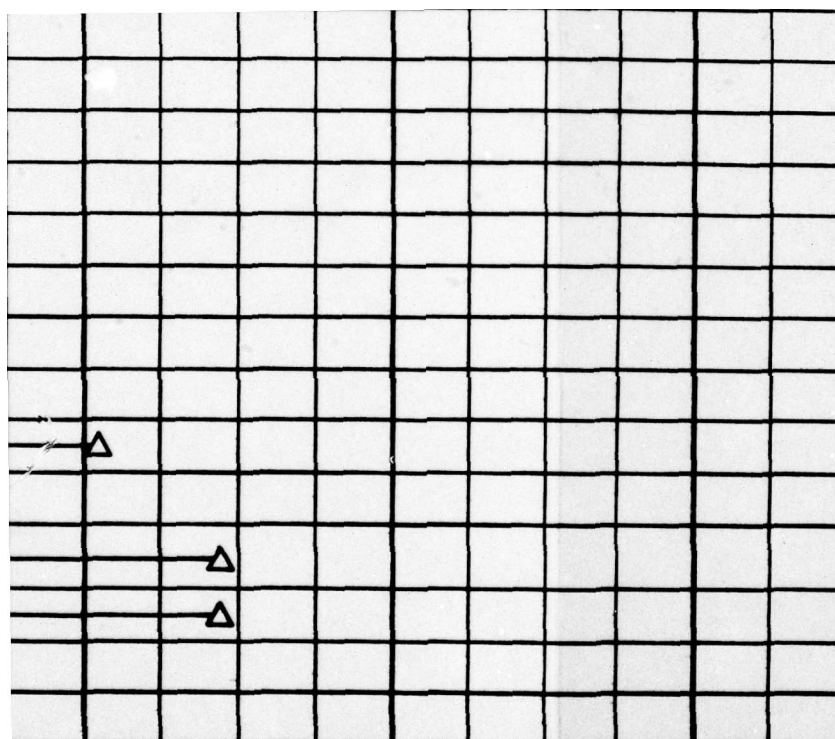
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<u>ACTION</u>	<u>COGNIZANT COMMAND/ACTIVITIES</u>
1. Select option for Navy Apprentice Training System	CNO OP-099/ CNET
2. Establish Apprentice Training Executive Committee	CNO OP-099/CNET
3. Establish Program Coordinator	CNO OP-099/CNET
4. Determine, analyze and validate specific Fleet requirements for GENDETS	CINCLANTFLT/ CINCPACFLT
. Airman	
. Fireman	
. Seaman	
5. Identify staff billet requirements to conduct apprentice training	CNET/ CNTECHTRA
6. Identify facility and support requirements based on option selected	CNET/ CNTECHTRA
7. Analyze current and projected pipeline of apprentice trainees	CNO OP-099/ BUPERS
8. Executive Committee review	CNO OP-099, OP-39, OP-44, OP-59, CHNAVPERS, CNET, CNTECHTRA, and others to be determined
9. Development of Navy Apprentice Training Management Plan (NATMP). Plan to include but not limited to:	Project coordinator with cognizant commands/activities
. Curriculum development for each individual program (Seaman, Fireman, and Airman)	
. RTC phase-out plan	
. SSC phase-in plan	
. Identify impact on NTC/NAC	
. Facility requirements	
. Billet requirements	
. Identification of training costs	
. Identification of training material to support curriculum	
. Training schedule development	
. Development of POM	
10. Review and approval of NATMP	CNO OP-099/CNET
11. Implementation of NATMP	CNET/CNTECHTRA

Figure 6. Apprentice Training Action/Activity Summary Sheet

TABLE 7. NAVY APPRENTICE TRAINING INITIAL MANAGEMENT PLAN MILESTONES

	FY 1978					FY 1979					FY 1980					FY 1981								
	CY 1978					CY 1979					CY 1980					Cy 1981								
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
1. SELECT OPTION FOR NAVY APPRENTICE TRAINING SYSTEM	△	△																						
2. ESTABLISH APPRENTICE TRAINING EXECUTIVE COMMITTEE	△	△																						
3. ESTABLISH PROJECT COORDINATOR	△																							
4. EXECUTIVE COMMITTEE INITIAL MEETING		△																						
5. DETERMINE AND VALIDATE SPECIFIC FLEET REQUIREMENTS FOR <u>GEN DETS</u>		△								△														
6. IDENTIFY STAFF BILLET REQUIREMENTS		△	△																					
7. IDENTIFY CURRENT AND PROJECTED PIPELINE OF APPRENTICE TRAINEES		△	△																					
8. IDENTIFY FACILITY AND SUPPORT REQUIREMENTS		△	△																					
9. EXECUTIVE COMMITTEE REVIEW				△																				
10. CURRICULUM DEVELOPMENT			△																					
11. DEVELOPMENT OF NAVY APPRENTICE TRAINING MANAGEMENT PLAN (<u>NATMP</u>)		△				△																		
12. REVIEW AND APPROVAL OF <u>NATMP</u> BY CMO/CNET						△	△																	
13. CONTINUING FUNDING ANALYSIS AND UPDATE			△			△																		
14. DEVELOPMENT OF TRAINING SUPPORT REQUIREMENTS			△																					
15. PROCUREMENT OF TRAINING SUPPORT EQUIPMENT						△																		
16. CURRICULUM REVIEW AND APPROVAL																								
17. INITIAL INSTRUCTOR STAFF ORDERED TO TRAINING SITE VIA INSTRUCTOR TRAINING						△	△																	
18. DEVELOPMENT OF INSTRUCTOR GUIDES AND STUDENT HAND-OUTS																								
19. <u>RTC</u> PHASE-OUT PLAN						△																		
20. <u>SSC</u> PHASE-IN PLAN						△																		
21. READJUSTMENT OF BILLETS AND FUNDS BETWEEN <u>RTC</u> AND <u>SSC</u>																								
FY 1980 POM TO SEC DEF			△																					
FY 1981 POM TO SEC DEF																								
FY 1982 POM TO SEC DEF																								



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- . reorganize and possibly relocate apprentice training via one of the training options contained in this report
- . develop a Navy Apprentice Training Management Plan (NATMP) to provide a vehicle for orderly redesign of the current program to meet the post-1980 apprentice training requirement
- . identify and reorganize selected staff functions at CNET and CNTECHTRA dedicated for the various apprentice ratings
- . establish Seaman Apprentice, Fireman Apprentice, and Airman Apprentice as distinct individual programs.

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APPENDIX A

AIRMAN PROGRAM

COURSE MISSION

The Airman course mission as stated in the curriculum outline is as follows: "The Airman Apprentice Training course is designed to provide Aviation Apprentice Trainees not destined for Class 'A' schools, with a basic knowledge of, general safety precautions, the use of some common aviation hand tools, the purpose and use of the Naval Aviation Maintenance Program (NAMP), and other aspects of Naval aviation necessary to function in an aviation fleet/shore environment under limited supervision."

RATING STRUCTURE

After acquiring a basic knowledge of the duties and skills of the Airman ratings at apprentice training school, the graduate will be expected to "strike" for any one of the following aviation ratings:

Aviation Machinist's Mate (AD)	Aviation Storekeeper (AK)
Aviation Ordnanceman (AO)	Photographer's Mate (PH)
Air Controlman (AC)	Aviation Fire Control Technician (AQ)
Aviation Boatswain's Mate (AB)	Aviation Electronics Technician (AT)
Aviation Electrician's Mate (AE)	Aviation Antisubmarine Warfare Technician (AX)
Aviation Structural Mechanic (AM)	Aviation Maintenance Administrationman (AZ)
Aerographer's Mate (AG)	Aviation Antisubmarine Warfare Operator (AW)
Trademan (TD)	Aviation Support Equipment Technician (AS)

CURRICULUM

Current curriculum development is the responsibility of the lead Airman Apprentice Training School at San Diego and is under the curriculum control of CNTECHTRA. It is based upon the Airman Rate Training Manual, NAVPERS 10307-C.

The Airman curriculum provides instruction in the following general topics:

Safety: safety precautions involving basic aircraft systems, aircraft servicing and handling, aviation support equipment and survival equipment and aviation hand tools.

Naval Aviation Orientation: introduction to Naval aviation and aviation ratings, Naval air organization ashore and afloat, and aircraft familiarization.

Aircraft and Aircraft Equipment: familiarization of aircraft designations, nomenclature, theory of flight, power plants, hydraulics, pneumatics, avionics and armament.

Survival and Emergency Equipment: familiarization with parachutes, life vests, life rafts, helicopter rescue, firefighting and plane crash rescue.

Aircraft Handling and Line Operation: introduction to aircraft handling

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techniques, terminology, line operations and line safety.

Aircraft Servicing: introduction to aviation maintenance, definitions, terms, record keeping, maintenance data reporting.

Aviation Hand Tools and Hardware: nomenclature of aviation hand tools, care, use, identification and safety precautions and hand tools and aviation hardware.

CURRICULUM TOPICS. A revised curriculum was implemented in October 1977. This curriculum with its unit and topic listing follows:

- UNIT 1.0 Introduction to Naval Aviation
 - TOPIC 1.1 Introduction to Naval Aviation
 - TOPIC 1.2 Aviation Ratings
- UNIT 2.0 Organization and Functions
 - TOPIC 2.1 Naval Air Stations
 - TOPIC 2.2 Aircraft Carriers
 - TOPIC 2.3 Aircraft Squadrons
 - TOPIC 2.4 Aircraft Designations
- UNIT 3.0 Aircraft Familiarization
 - TOPIC 3.1 Aircraft Nomenclature and Theory of Flight
 - TOPIC 3.2 Power Plants Systems
 - TOPIC 3.3 Hydraulic and Pneumatic Systems
 - TOPIC 3.4 Oxygen and Egress Systems
 - TOPIC 3.5 Electrical, Avionics, and Armament Systems
- UNIT 4.0 Aircraft Support Functions
 - TOPIC 4.1 Aviation Fuels, Oils, and Hydraulic Fluid
 - TOPIC 4.2 Aviation Support Equipment
 - TOPIC 4.3 Aircraft Handling and Securing Devices
 - TOPIC 4.4 Safety in Line Operations
 - TOPIC 4.5 Aircraft Taxi Signals
 - TOPIC 4.6 Static Electricity
 - TOPIC 4.7 Aircraft Corrosion
 - TOPIC 4.8 Aircraft Cleaning
- UNIT 5.0 Survival and Emergency Equipment
 - TOPIC 5.1 Helicopter Rescue
 - TOPIC 5.2 Parachute Familiarization
 - TOPIC 5.3 Life Vests
 - TOPIC 5.4 Multiplace Life rafts
 - TOPIC 5.5 Aircraft Firefighting and Crash Rescue
- UNIT 6.0 Hand Tools and Shop Project
 - TOPIC 6.1 Introduction to Personnel Qualifications Standards (PQS)
 - TOPIC 6.2 Files, Hacksaws, and Vises
 - TOPIC 6.3 Measuring and Marking Tools, and Drills
 - TOPIC 6.4 Screwdrivers and Pliers
 - TOPIC 6.5 Aircraft Hardware

- TOPIC 6.6 Striking Tools, Punches, and Chisels
- TOPIC 6.7 Wrenches
- TOPIC 6.8 Torque Wrenches
- TOPIC 6.9 Lockwiring
- TOPIC 6.10 Shop Project

UNIT 7.0 Naval Aviation Maintenance Program (NAMP)

- TOPIC 7.1 Introduction to the Naval Aviation Maintenance Program
- TOPIC 7.2 Planned Maintenance System
- TOPIC 7.3 Aircraft Inspections
- TOPIC 7.4 Maintenance Data Collection System
- TOPIC 7.5 Maintenance and Operation Manuals

UNIT 8.0 Administrative Functions

The detailed classroom instruction on completion of Navy Maintenance Data Collection System forms incorporates knowledges which may not be required of newly assigned apprentice trainees for a considerable period of time and may be forgotten by the time they are needed. This portion of apprentice training might be analyzed in terms of providing more generalized knowledge appropriate to the level and duties of the Airman in his initial assignment. Time saved could be utilized for more instruction in flight deck safety indoctrination.

Instructors follow the curriculum outline and subject outlines prepared by the lead school at San Diego. The Airman Manual is used as a regular adjunct to classroom presentations and as a source for further study and more detailed information. There is, however, some flexibility in the time devoted to subject matter in order to insure understanding and place more emphasis on certain critical areas involving safety. A special effort is made to point out the dangers inherent to aircraft handling on crowded aircraft carrier decks and shore stations. Students were observed to respond with great interest to this type of instruction. A segment of the curriculum is devoted to shop practice, in which the classroom instruction on the use of tools is reinforced by experience in the shop. All students take part in this shop exercise, and all are required to meet the standards established for the exercise.

Familiarization training is provided either through static displays of Navy aircraft, or through field trips to Naval air facilities, such as the Naval Air Station (NAS), Miramar, California, conducted by San Diego. It has been suggested that benefits could be achieved at Orlando by busing the AN students to NAS Jacksonville, or NAS Cecil Field, in order to get a first-hand look at the environment and equipment with which they will be working.

TRAINING MATERIALS. Training materials are approved, controlled, and disseminated by CNTECHTRA, Memphis. Due to recent organizational changes, some shortages were experienced at Orlando, but these are being corrected. A number of programmed instruction booklets are used by airman schools, including some developed by the aviation fundamentals course for "A" school attendees. A new audio-visual program is currently in production, which might be useful in apprentice training when available. Most films and slide/film presentations are excellent; however, some are outdated and do not reflect modern equipment. An updated film on jet engines is needed.

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Reference materials for Airmen were evaluated for difficulty level. The average grade level (FOG Index) of the Airman Manual is 12.0. The average Airman trainee has a reading comprehension level of 8.65 with a range of persons reading at the 6.5 to 11.9 grade level.

APPENDIX B

FIREMAN PROGRAM

COURSE MISSION

The goal of Fireman apprentice training is to provide concentrated instruction to introduce Fireman rates to the engineering field to enable them to serve successful apprenticeship. The curriculum's stated mission is "To prepare assigned personnel for a more successful apprenticeship and early duty/watchstation qualification on board ship by instructing them in engineering department organization and watchstanding, basic engineering physics, the basic steam cycle, main propulsion/auxiliary machinery and equipment, shipboard electrical equipment, damage control, PQS, and the 3-M system."

RATING STRUCTURE

The Fireman rating is a source rating for the Engineering and Hull Group. The advancement pattern runs from Fireman Recruit, Fireman Apprentice, Fireman, into the Petty Officer specialty ratings. Specialty ratings include:

- Boiler Technician (BT)
- Machinery Repairman (MR)
- Engineman (EN)
- Machinist's Mate (MM)
- Patternmaker (PM)
- Interior Communications Electrician (IC)
- Hull Maintenance Technician (HT)
- Electrician's Mate (EM)
- Molder (ML)

CURRICULUM

All three Fireman schools are meeting the basic requirements of instruction contained in the Fireman Apprenticeship Training Course Curriculum Outline approved 1 April 1975. Each school represents a different training model resulting from facilities available, condition of training aids, ingenuity of the instructors, effectiveness of the local supply and training aid support systems, and the access to operational units for field trips. Overall, the present Fireman training is estimated to be 90 percent traditional classroom work and 10 percent laboratory or hands-on training. Traditionally, vocational education type training, under which classification Fireman apprentice training would fall, is approximately one-third classroom training and two-thirds laboratory or hands-on training. However, any move to increase the amount of hands-on training must be accompanied by increased funding for equipment and training aids prior to implementation. It is concluded that the present Fireman curriculum is accomplishing as much or more than could normally be expected with the present training format. A good job is being done for a 2-week program. A much better job could be done in preparing Fireman apprentice trainees if hands-on and laboratory equipment appropriate to Fireman training were available. The current 4-week curriculum is under development and should address this requirement.

CURRICULUM TOPICS. Topics presently contained in Fireman apprentice training reflect PQS requirements. The rate training manual (NAVEDTRA 10520-E) was updated in 1976. Future inclusion of NOTAP data, when available, may change stress placed upon some topics during apprentice training; however, this should not affect the topics concerned to any great degree. A listing follows:

Training Topics

- 1.1 Introduction to Fireman Apprentice Training
- 1.2 Engineering Department Organization
- 1.3 Tools and Their Uses
- 1.4 Engineering Fundamentals
- 1.5 Personnel Qualification Standards
- 1.6 Basic Steam Cycle
- 1.7 Instruments
- 1.8 Boilers
- 1.9 Auxiliary Machinery and Equipment
- 1.10 Pumps
- 1.11 Engineering Watches
- 1.12 Valves
- 1.13 Ship's Propulsion
- 1.14A Steam Turbines
- 1.14B Reduction Gears and Lubrication
- 1.15 Piping Systems
- 1.16A Damage Control (Part I)
- 1.16B Damage Control (Part II)
- 1.17 3-M System
- 1.18 Internal Combustion Engines
- 1.19 Shipboard Electrical Equipment

Instructor/supervisor interviews revealed general satisfaction with program topics. A consensus was that 11 of the 21 topics should be expanded in time and depth and one reduced to better meet perceived Fleet needs. Topics considered candidates for expansion in length and depth of knowledge were:

- Engineering Department Organization
- Personnel Qualification Standards
- Instruments
- Boilers
- Auxiliary Machinery and Equipment
- Valves
- Ship's Propulsion
- Steam Turbines
- Reduction Gears and Lubrication
- Damage Control (Part I)
- Damage Control (Part II)

Six periods of Engineering Watches was considered excessive unless actual watchstanding practice could be included. Student confusion was evident in regard to the following topics, as they are now presented, for one reason or another: Pumps, Damage Control (Part I), 3-M System, Internal Combustion Engines and Shipboard Electrical Equipment. Shipboard Electrical Equipment was universally

cited as very difficult to teach. San Diego has submitted a proposal to improve this topic.

General comments included the addition of more engineering and damage basics simply because: "the ships just don't have time to accomplish the task." Safety engineering (basic) was mentioned as a possible topic. Provided time can be made available, Engineering Operational Sequencing System (EOSS) and gas turbines were recommended as curriculum topic additions.

There is insufficient inclusion of schematics and use of engineering drawings within the course of instruction. Also, until the metric system comes into more general usage, any time spent introducing the metric system could be better used to some other advantage. As mentioned before, no extreme curriculum revisions should be attempted until adequate training material support and a more stabilized instructor corps can become a reality. A dedicated group of short term instructors are doing an excellent job with a 2-week curriculum. Neither student nor instructor can handle much more under present conditions.

TRAINING MATERIALS

Training aids cited as instructional materials in the current Fireman Apprentice Training Course Curriculum Outline (1 July 1975) were not in general use across the three schools although the curriculum outline was being closely adhered to as far as learning objectives were concerned. If such training materials were initially distributed, which is doubtful from the training support history of both apprentice and recruit training, the program could provide to the Fleet a better oriented sailor. Many training aids have become damaged or lost and were not replaced. Sixteen millimeter films appropriate for apprentice training are particularly difficult to acquire or replace through normal channels. As a consequence, each school has developed its own training aids to a large extent in order to get the job done. Lack of a properly funded centralized agency with apprentice training interest and priority capability within the management structure has compounded the problem. Each Fireman apprentice training school utilizes an assortment of old ship parts and cast-off cutaways acquired from numerous sources during the past 5 years. These pieces of equipment are valuable in that the trainee has opportunity to view operational-type equipment. All three schools are hampered, however, by not having proper mockups to conduct the training assigned in a hands-on mode, real or simulated. The point is that training can go only so far with paper, pencil, and memory to prepare for a real world "mechanical" environment.

A sampling of the reading difficulty level of the basic text used by Fireman trainees provides a clue to some of the instructional problems cited. A FOG Index, which measures reading level of printed material, was conducted on the Fireman Rate Training Manual, NAVEDTRA 10520-E (revised 1976). The index on the text was at the 13.4 year reading level. The reading level for a sampling of Fireman apprentice trainees ranged from 6.5 to 12 years for an average of 10.54 years which is near the mean for today's enlisted personnel. This means the basic text is approximately 3 years beyond the reading capability of the average Fireman apprentice trainee. Indeed, the text may be above the average reading level of many instructors who through experience are able to close the gap.

APPENDIX C

SEAMAN PROGRAM

COURSE MISSION

The mission of the Seaman Apprentice program as stated in the curriculum is as follows: "To provide the Seaman Apprentice trainee with a basic knowledge of Seamanship as it pertains to deck ratings, common equipment used aboard ships, general safety precautions, and to better prepare the individual for 'on-the-job' training at subsequent duty assignments."

RATING STRUCTURE

The 34 ratings open to the Seaman general rate are divided into five major categories as follows:

Deck Group: Boatswain's Mate (BM), Quartermaster (QM), Operations Specialist (OS), Sonar Technician (ST), Signalman (SM), Ocean Systems Technician (OT), Electronic Warfare Technician (EW), Master-at-Arms (MA).

Ordnance Group: Fire Control Technician (FT), Gunners's Mate (GM), Mineman (MN), Torpedoman's Mate (TM), Missile Technician (MT).

Electronics & Precision Instrument Group: Instrumentman (IM), Data Systems Technician (DS), Electronics Technician (ET), Opticalman (OM).

Administrative & Clerical Group: Data Processing Technician (DP), Legalman (LN), Intelligence Specialist (IS), Mess Management Specialist (MS), Personnelman (PN), Disbursing Clerk (DK), Postal Clerk (PC), Ship's Serviceman (SH), Yeoman (YN), Storekeeper (SK), Cryptologic Technician (CT), Navy Counselor (NC), Radioman (RM), Journalist (JO).

Miscellaneous Group: Musician (MU), Illustrator-Draftsman (DM), Lithographer (LI).

CURRICULUM

The SN curriculum is in the process of revision in order to update for changes in Fleet technology and to change the emphasis given to certain topics. This makes it difficult to evaluate curriculum adequacy at this time, and further evaluation should be accomplished once the new curriculum is implemented. Instructors are making a sincere effort to follow the curriculum as set forth. The Instructor Guides (IGs) as written, contain too much material for the time allotted for training. Instructors teach key areas and generally restrict instruction to basics. The present curriculum outline which follows conforms with those topics listed in the Navy Occupational Standards for SN apprentices.

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CURRICULUM TOPICS

UNIT 1

ADMINISTRATION

TOPIC NO.

- 1 Orientation to Seaman Course
- 2 Qualification for Advancement
- 3 Seaman Ratings
- 4 Principles of the 3-M System

UNIT 2

ORGANIZATION

- 1 Shipboard Organization
- 2 Shipboard Chain of Command
- 3 Departments Aboard Ship 1
- 4 Departments Aboard Ship 2

UNIT 3

WATCHSTANDING

- 1 Bridge Watch Team
- 2 Duties of Helmsman and Associated Control Equipment - 2 Periods
- 3 Lookouts 1
- 4 Lookouts 2
- 5 Lookouts 3
- 6 General Seaman Watches
- 7 Telephone Talker 1
- 8 Telephone Talker 2
- 9 Telephone Talker 3
- 10 Telephone Talker Drill 1
- 11 Telephone Talker Drill 2
- 12 Visual Signaling

UNIT 4

MARLINSPIKE SEAMANSHIP

- 1 Line and Wire Rope
- 2 Whipping and Splices
- 3 Knots, Bends and Hitches
- 4 Knot Tying Drill - Knots, Bends, Hitches

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UNIT 5

DECK SEAMANSHIP

TOPIC NO.

- 1 Deck Fittings
- 2 Deck Equipment
- 3 Ground Tackle 1
- 4 Ground Tackle 2
- 5 Ground Tackle 3
- 6 Special Sea and Anchor Detail - Drill 1
- 7 Special Sea and Anchor Detail - Drill 2
- 8 Rigging
- 9 Boatswain's Chair - Drill
- 10 Stage Drill
- 11 Tour of Topside Areas

UNIT 6

CARGO HANDLING

- 1 Replenishment at Sea - Rigs
- 2 Replenishment at Sea - Equipment
- 3 Manila Highline Rig - Transferring Personnel
- 4 Manila Highline Rig - Drill 1
- 5 Manila Highline Rig - Drill 2
- 6 Manila Highline Rig - Drill 3
- 7 Ammunition Handling
- 8 Ammunition Handling Drill - 2 Periods

UNIT 7

BOAT SEAMANSHIP

- 1 Identification of Boats
- 2 Boat Crew
- 3 Hoisting and Lowering of Boats
- 4 Boat Etiquette
- 5 Steering a Boat by Compass
- 6 Motor Whaleboat Drill

UNIT 8

RULES OF THE ROAD

- 1 Channel Buoys
- 2 Rules of the Road - 2 Periods
- 3 Ship's Lights

UNIT 9

PAINTING

TOPIC NO.

- 1 Surface Preparation
- 2 Paint
- 3 Painting by Brush
- 4 What Not to Paint

UNIT 10

SAFETY

- 1 General Shipboard Safety 1
- 2 General Shipboard Safety 2

UNIT 11

DAMAGE CONTROL

- 1 Ship Construction - 2 Periods
- 2 Compartment Designation

UNIT 12

GUNNERY

- 1 Gun Ammunition
- 2 Duties of a Gun Crew
- 3 Gunnery Commands and Safety Precautions
- 4 Gunnery Loading Drill - 2 Periods

The consensus of training personnel is that the following topics need to be revised by updating or changing emphasis:

Marlinspike Seamanship (Knots)
Blocks and Tackles
Basic Seaman Hand Tools
Telephone Talker (Drills)
Phonetic Alphabet
Rigging
Rules of the Road
Cargo Handling
Hoisting and Lowering Boats
3-M System

Deck Fittings
Numbering System
Damage Control
Ammunition, Primers, and Fuzes
Oxygen Equipment
Detection of Weapons Systems
(Sonar-Radar)
Anti-Submarine Launch
Safety (Line Handling)
Shipboard Armament

The following specific curriculum areas are causing difficulties:

Metric System. A determination needs to be made as to the requirement to teach the metric system and, if so, to what depth. In order to teach it adequately, more time needs to be allotted.

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Converting Compass Courses. This lesson should be closely examined. Trainees are having problems, and it may be the teaching strategy rather than the material. Instructor demonstrations, however, should be included.

Deflection Correction. This lesson appears to be causing difficulty both in presentation and in being grasped by the trainee. The key appears to be explaining how to solve for the missing factors. Instructor demonstration is important before the trainee is asked to demonstrate problem solving ability before the class.

GENERAL COMMENTS ON SEAMAN APPRENTICE TRAINING

There appears to be some overlapping with topics taught in recruit training, but this is to be expected since the course offers advanced training in many of those topics which are merely introduced in recruit training. This should be kept in mind when developing lesson plans so as to avoid duplication of effort. The amount of hands-on training or demonstration taking place differs from one activity to another. This is dependent upon supplies and the number of trainees in any one classroom. While one activity may have in excess of 100 in a classroom with one instructor, another activity may make two classes out of the 100 input trainees. The availability of instructors affects the amount of performance-type training which can be accomplished.

TRAINING MATERIALS. The number and quality of training aids differ across training activities depending upon access to used "A" school materials, the ingenuity of the instructor, or access to funds at that particular installation. While Orlando and Great Lakes have been successful in getting a high-line rigging, San Diego has encountered difficulty obtaining safety certification.

Reference materials for the course are the Seaman's Manual, Bluejackets' Manual, and the Basic Military Requirements Manual. These materials were analyzed (FOG Index) for reading difficulty:

<u>Reference</u>	<u>Grade Level</u>
Seaman's Manual	9-10
Bluejackets' Manual	10-11
BMR Manual	8-9

The mean reading comprehension grade level for two classes, picked at random, was 8.72 with a range of 5.0 to 12.0. Forty-two percent of the sample read at or below the 8th grade level. With the mean difficulty level of the three reference materials at 9th grade level and 42 percent of the class reading at or below the 8th grade level, some difficulty would be encountered. Simplified handouts would be of assistance in counteracting the difficulty for this trainee group.

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All three training activities are doing a good job in view of their resources and physical location. Each is teaching the curriculum as it now stands, mainly concentrating on major topics because of the allotted time. Coverage of the present curricula in-depth would require at least an additional week of training. There are some inadequacies in the curriculum currently in use; however, the curriculum is now in the process of revision. The Seaman curriculum is confined to basic seamanship for general duties required of anyone reporting to the Fleet in the Seaman rating, regardless of which rating the individual may "strike" for. Insofar as this is the aim of the program, it meets the needs of the Fleet with some updating of information and minor changes in order. Undoubtedly, greater depth of instruction would add to the quality of the product, but just what the nature of this would be must be decided when the new curriculum is developed. At that time judgment should be made as to the most suitable length of the course to cover the material to be taught.

APPENDIX D

CONSTRUCTIONMAN PROGRAM

INTRODUCTION

The Naval Construction Training Center (NAVCONSTRACEN), Gulfport, conducts training programs for Naval Construction Force personnel. The NAVCONSTRACEN also has the responsibility for conducting the Constructionman apprentice training program. This program was initiated in 1972 and the last requirement consisting of two students, was completed on 16 May 1975. Since that time, the NAVCONSTRACEN has received no students designated for the apprentice training program. Therefore, the analysis of the apprentice training program was based on the current curriculum outline for Constructionman Apprentice (A-030-0010), a review of NAVCONSTRACEN policy and practices, the annual report made to the Commission on Occupational Education Institutions, Southern Association of Colleges and Schools (SACS), and an on-site visit to the activity.

COURSE MISSION

The mission of the Constructionman apprentice training is to provide meaningful learning experience through which recent graduates of Navy recruit training will gain the knowledge and skills necessary to make them immediately useful to the Fleet Mobile Construction Battalions as helpers in construction operations.

The stated goals of this apprentice program are for the trainee to:

- . be able to define and use common construction terms
- . have a sound basic knowledge of construction safety
- . be able to identify, by name and function, the tools, equipment, and material which he would likely be called upon to use as a helper
- . be able to make the transition into 'Battalion life' with minimum difficulty
- . be able to decide upon a rating for which to strike based upon a basic knowledge of the kind of work performed in each.

RATING STRUCTURE

The Constructionman rating is confined to a single group; i.e., Construction. The advancement pattern is from Constructionman Recruit, Constructionman Apprentice, Constructionman, and then to specialty ratings for Petty Officers. These specialty ratings are:

Engineering Aid (EA).

Builder (BU)

Steelworker (SW)

Construction Electrician (CE)

Utilitiesman (UT)

Equipment Operator (EO)

Construction Mechanic (CM)

CURRICULUM

The Constructionman Apprentice Course (A-030-0010) was established in 1972 as a "P" course and approved by the Chief of Naval Technical Training (CNTECHTRA) in 1973. This program is now listed as an "AA" course in the Catalog of Navy Training Courses (CANTRAC). Since there has been no apprentice student input since May 1975, there has been no requirement to update the curriculum. Unlike the present 2 week program for Airman, Fireman, and Seaman apprentice training conducted by the RTCs, the Constructionman apprentice training is 4 weeks in length, consisting of 128 periods of classroom, shop, and field sessions. Each period of instruction represents one contact hour of instruction. The existing curriculum devotes 67 percent (86 periods) to the classroom and 33 percent (42 periods) to the shop and field environment. Approximately 11 of the 86 periods of classroom are devoted to administration, general orientation, checkout, and graduation. This ratio of classroom, shop, and field sessions is more in line with accepted vocational practices than is presently found in the Airman, Fireman, and Seaman apprentice training programs.

CURRICULUM TOPICS. The curriculum is divided into six phases, with each phase divided into one or more units of instruction. Each unit is devoted to a series of topics concerned with a specific area of instruction. The phases, units, and topics are as follows:

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Phase 1
ORIENTATION

Unit 1 - ORIENTATION

SUBJECT	CLASSROOM	PRACTICAL (SHOP OR FIELD)	TOTAL PERIOD(S)
1. Welcome Aboard	2	0	2
2. Watch Standing	1	0	1
3. Berthing Standards	1	0	1
4. Introduction to Safety	<u>1</u>	<u>0</u>	<u>1</u>
	5	0	5

Phase 2
GENERAL/STEELWORKER

Unit 1 - NAVY CONSTRUCTION FORCE INDOCTRINATION

1. Seabee History	1	0	1
2. Construction Battalions	4	0	4
3. Group VII Ratings	<u>1</u>	<u>0</u>	<u>1</u>
	6	0	6

Unit 2 - STEELWORKER

1. Introduction to the SW Rating	1	0	1
2. Wire Rope and Fiber Line	2	0	2
3. SW Tool Kits	1	1	2
4. Sheetmetal	2	2	4
5. Steel Structures	1	1	2
6. Welding and Cutting	1	3	4
7. Concrete Reinforcing Steel	<u>1</u>	<u>1</u>	<u>2</u>
	9	8	17

Unit 3 - TEST & REVIEW

1. Test & Review	<u>1</u>	<u>0</u>	<u>1</u>
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Phase 3
CONSTRUCTION ELECTRICIAN/UTILITIESMAN

Unit 1 - CONSTRUCTION ELECTRICIAN

SUBJECT	CLASSROOM	PRACTICAL (SHOP OR FIELD)	TOTAL PERIOD(S)
1. Introduction to the CE Rating	2	0	2
2. Safety - Shop and Field	2	0	2
3. Handtools	1	1	2
4. Interior Wiring	2	3	5
5. Power Distribution	2	2	4
6. Generator Operations	0	1	1
	<u>9</u>	<u>7</u>	<u>16</u>

Unit 2 - UTILITIESMAN

1. Introduction to the UT Rating	2	0	2
2. Cast Iron Soil Pipe	1	1	2
3. Threaded Pipe	1	2	3
4. Sewer Piping	2	0	2
5. Valves and Faucets	1	0	1
6. Introduction to Refrigeration	2	0	2
7. Pumps	1	0	1
8. Boilers	1	1	2
9. Water Sources and Treatment	1	1	2
	<u>12</u>	<u>5</u>	<u>17</u>

Unit 3 - TEST & REVIEW

1. Test & Review	<u>1</u>	<u>0</u>	<u>1</u>
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Phase 4
BUILDER/ENGINEERING AID

Unit 1 - BUILDER

SUBJECT	CLASSROOM	PRACTICAL (SHOP OR FIELD)	TOTAL PERIOD(S)
1. Introduction to the BU			
Rating	2	0	2
2. Wood Construction	2	3	5
3. Painting	1	1	2
4. Concrete	1	1	2
5. Masonry	1	3	4
	<u>7</u>	<u>8</u>	<u>15</u>

Unit 2 - ENGINEERING AID

1. Introduction to the EA			
Rating	1	0	1
2. Drafting	2	2	4
3. Surveying	2	2	4
4. Soil Testing	1	0	1
5. Planning & Estimating	1	0	1
	<u>7</u>	<u>4</u>	<u>11</u>

Unit 3 - TEST & REVIEW

1. Test & Review	1	0	1
	<u>1</u>	<u>0</u>	<u>1</u>

Phase 5
CONSTRUCTION MECHANIC/EQUIPMENT OPERATOR

Unit 1 - CONSTRUCTION MECHANIC

1. Introduction to the CM			
Rating	2	0	2
2. Safety	2	0	2
3. Internal Combustion Engines	2	0	2
4. Automotive Vehicle Fundamentals	1	1.5	2.5
5. Shop Tools and Equipment	1	1	2
6. Automotive Power Trains	1	3	4
7. Preventive Maintenance & Tire Service	1	1	2
8. Construction Equipment Power Trains	1	0.5	1.5
	<u>11</u>	<u>7</u>	<u>18</u>

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Unit 2 - EQUIPMENT OPERATOR

SUBJECT	CLASSROOM	PRACTICAL (SHOP OR FIELD)	TOTAL PERIOD(S)
1. Introduction to the EO Rating	2	0	2
2. Equipment Management	1	1	2
3. Equipment Identification	5	0.5	5.5
4. Construction Hand Signals	1	1	2
5. International Road Signs	1	0	1
6. Gradework	2	0.5	2.5
	<u>12</u>	<u>3</u>	<u>15</u>

Unit 3 - TEST & REVIEW

1. Test & Review	$\frac{1}{1}$	$\frac{0}{0}$	$\frac{1}{1}$
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Phase 6
GRADUATION AND CHECKOUT

Unit 1 - GRADUATION AND CHECKOUT

1. Checkout	3	0	3
2. Graduation	$\frac{1}{4}$	$\frac{0}{0}$	$\frac{1}{4}$

Total Classroom Periods	86
Total Practical Periods	42
Total Periods	128
Total Weeks for Course	4

Note: Each period represents one contact hour.

It is well recognized by the Navy Constructionman training community that if the apprentice training program was to be reinitiated, a number of curriculum changes could be expected, that would follow the CNTECHTRA A-10-A, the NOTAP, PQS, and other policies and directives established by CNET, CNTECHTRA, and the local command. Such changes have been well documented in other ongoing programs at the NAVCONSTRACEN.

TRAINEE THROUGHPUT

The apprentice training program for Constructionman is single-sited at NAVCONSTRACEN, Gulfport. Since 2 years have elapsed since the last class, only past annual throughput figures were available. These data are reflected in table D-1.

TABLE D-1. CONSTRUCTIONMAN APPRENTICE ANNUAL STUDENT THROUGHPUT

<u>CALENDAR YEAR</u>	<u>STUDENT THROUGHPUT</u>
1972	708
1973	891
1974	465
1975	136

Based on a review of the curriculum, it has been determined that class size was limited to 36 trainees. Therefore, during the peak periods of 1972, 20 classes were held and in 1973 approximately 25 classes were conducted. This would equate to a class starting about every 2 weeks.

INSTRUCTOR/TRAINEE RATIO

The 1973 Apprentice curriculum provides specific information on the ratio of instructor to trainee for each topic. In the classroom situation, the ratio was 1:36 while shop and field ratios varied from 1:18 to 1:9. The latter ratio was due to safety factors. Current NAVCONSTRACEN policy establishes the number of students per instructor as follows:

1. Classroom - 1:16
2. General Shop or Field - 1:8
3. Topic with Major Safety Factor - 1:4

INSTRUCTORS

The NAVCONSTRACEN annual report of 20 August 1976 to the Commission on Occupational Education Institutions (Southern Association of Colleges and Schools) provides an excellent insight concerning instructors. The average instructor had approximately 13 years experience in the Navy and had been an instructor at NAVCONSTRACEN for 1.27 years. Their civilian academic background ranged from nonhigh school through college degree as shown in table D-2.

TABLE D-2. EDUCATIONAL BACKGROUND OF INSTRUCTORS AT NAVCONSTRACEN (1976)

<u>HIGHEST EDUCATION LEVEL ACHIEVED</u>	<u>NUMBER OF INSTRUCTORS</u>
Nonhigh school graduates	8
High school graduates	31
One or more years of college	14
Trade school graduate	1
AA degree	5
BA/BS degree	3

TRAINING MATERIAL

Training aids, equipment, and materials referenced in the curriculum outline reflect the philosophy of the command and course mission relating to performance. Attachment 1 provides a list of films (Navy and commercial), major and minor equipment, and consumable material used for each unit of the curriculum. Each Instructor's Guide in the curriculum provides the instructor with detailed information concerning publications, training aids, equipment, and instructor prepared materials. This was considered the best documented training material support of the four apprentice training programs.

Unlike the Apprentice program conducted at the RTCs, the NAVCONSTRACEN program was conducted in an "A" school environment. Since NAVCONSTRACEN conducts an "A" school for all ratings addressed in their apprentice training program, they were in a position to use some training material already in inventory. Due to the nature of the courses taught in the "A" school, the command was also in an excellent position to develop many of their own training aids such as cutaways, charts, and display boards.

EVALUATION AND TESTING

The curriculum for apprentice training established that the evaluation system for students would primarily be performance based. The apprentice training would be evaluated by a combination of written tests, observation, and oral communication and would be required to attain an achievement level of 75 percent.

In May 1977 NAVCONSTRACEN Instruction 1500.4 established a new policy relating to the evaluation of students. The instruction would apply to the Apprentice program and conforms to the guidelines established by the CNTECHTRA A-10-A manual. The instruction provides an evaluation system using criterion referenced testing that may be applicable to all apprentice training. It is based upon the following criteria:

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- . Practical performance - 50 percent
- . Written examinations - 30 percent
- . Military behavior - 20 percent

Since NAVCONSTRACEN is concerned with the individual not only in the classroom but in the total environment, military behavior is an important part of the evaluation system. The student is evaluated on military bearing, attitude, and appearance. The following criteria have been established:

<u>Percent Awarded</u>	<u>Evaluation</u>
20	Outstanding in all respects
16	Good in all respects
12	Average in all respects
6	Below average
0	Unsatisfactory

The system requires that trainees must have successfully completed the written test for a specific unit of instruction prior to the administration of practical performance tests. Any trainee who fails is provided remedial instruction.

Remedial instruction is conducted Monday through Thursday between the hours of 1530 and 1700. In addition, division heads may conduct remedial training Fridays, Saturdays, and holidays at times designated. As a motivation factor, NAVCONSTRACEN has instituted an honorman graduate for each course, and every student that exceeds a 90 percent evaluation graduates with distinction.

CONSTRUCTION METHODOLOGY ADVISORY COMMITTEE

Based on a recommendation from the Commission on Occupational Education Institutions, Southern Association of Colleges and Schools, the NAVCONSTRACEN established a Construction Methodology Advisory Committee to evaluate the quality and quantity of training conducted at the center. This committee is composed of the Atlantic Fleet Naval Mobile Construction Battalion, Master Chief Petty Officers of the Command, and Operations Chief Petty Officers. There is continued informal interface by school staff with the Naval Mobile Construction Battalion when homeported at Gulfport and the Twentieth Naval Construction Regiment that provides the NAVCONSTRACEN with continuous feedback.

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PROGRAM OPERATION

Since the CN program has not been conducted for over 2 years, it was necessary for TAEG and staff personnel at NAVCONSTRACEN to reconstruct the Apprentice program as it would look today. The results follow:

BERTHING. All enlisted personnel are required to maintain a bunk in the BEQ. This is required although the individual may be authorized to live ashore. This requirement is based on the need to make the proper transition to battalion life and to conform to operational requirements of the Atlantic Fleet Mobile Construction Battalion. If the apprentice program were in operation today, trainees would be assigned to BEQs in the same manner as regular "A" students. To insure that trainees understand berthing standards, one period of formal instruction is devoted to this subject. Included in this topic are: (1) Arrangement of Furnishings, (2) Field Days, (3) Linen Exchange, (4) Reporting Damage, (5) Reporting Theft, and (6) Checkout Procedures.

MESSING. There would be no distinction between procedures for the apprentice trainee and regular "A" school trainee for messing.

WATCHSTANDING. NAVCONSTRACEN currently has only two requirements for watchstanding--Fire Watch and Security Watch. The command operates a six-section watch. As with regular "A" students, the Apprentice curriculum has a topic addressing watchstanding. This topic provides the student with an understanding of local instructions, requirements of the duty section, the watch structure, and watch bills.

PHYSICAL TRAINING. One change which would be implemented if the apprentice training program was to be conducted is in the area of physical training. The "A" school routine provides 3½ hours for the command sports program each Friday which is mandatory for all trainees. Emphasis is on team sports since the team concept is considered essential to the transition to "Battalion life." All NAVCONSTRACEN staff personnel, including officers, participate in this program.

GOOD ORDER AND DISCIPLINE. NAVCONSTRACEN provides the trainee an environment which simulates the operational battalion. This is reflected in the role played by staff officers and enlisted men assigned to supervisory positions. Instructors are concerned not only with the trainee in the classroom but, uniquely, after training hours as well. Each class is assigned a counselor. This counselor is a senior instructor whose additional duty is to assist any trainee having personal problems. Although assigned as a specific class counselor he may also be a class instructor part of the time. A primary factor in the selection of the counselor is that he will be available during the trainee's scheduled training period. There is no question on the part of the trainee as to who the counselor is or who is to be counseled.

Department or Command Quarters are conducted at 0700 each training day. The Department Quarters are conducted Monday through Thursday with the Command Quarters held each Friday. The formation follows procedures used in the operational battalions. For example, the Command Quarters includes the

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Commanding Officer, his staff, the department heads with their staffs, and the trainees assigned to each department. The Commanding Officer may choose to inspect one or more of his departments. The same applies to Department Quarters, where the department head daily inspects his units, passes "the word," or conducts general military training.

Marching is considered an integral part of good order and discipline at the NAVCONSTRACEN. Further, it is a function required in the Fleet Naval Mobile Construction Battalions. Beside the muster for quarters, the NAVCONSTRACEN trainees march to and from classes.

ATTACHMENT 1 TO APPENDIX D

TRAINING AIDS, EQUIPMENT, AND MATERIALS
DESIGNATED BY THE NAVAL CONSTRUCTION TRAINING CENTER
IN SUPPORT OF CONSTRUCTION APPRENTICE TRAINING

NAVAL TRAINING AIDS

1. Films

MN 71	<u>Hand Sawing</u>
MN 1921F	<u>To Live in Darkness</u>
MN 1921G	<u>Safety for Welders</u>
MN 2246A	<u>Mechanical Refrigeration</u>
MN 2340A	<u>Ship Building Skills - Rigging - Use and Care of Wire Rope</u>
MN 2340B	<u>Ship Building Skills - Rigging - Use and Care of Fiber Line</u>
MN 2340H	<u>Ship Building Skills - Rigging - Blocks</u>
MN 4597	<u>For Safety's Sake</u>
MN 6741	<u>Ships' Pumps</u>
MN 6797A	<u>Orthographic Projection</u>
MN 6830C	<u>Military Surveying, Leveling</u>
MN 6830D	<u>Military Surveying, Traverse</u>
MN 7320A	<u>Amphibious Construction Battalions</u>
MN 7320B	<u>Mobile Construction Battalions</u>
MN 7488A	<u>Advance Base Waterfront Construction, Timber Piers</u>
MN 7489A	<u>Water Purification</u>
MN 7831I	<u>The Use of Soldering Coppers</u>
MN 8131F	<u>Public Works and Public Utilities, Painting Structures Ashore</u>
MN 8990	<u>115 Volts - Deadly Shipmate</u>
MN 9223A	<u>Boilers and Their Operation, How Boilers Work</u>
MN 9223E	<u>Boilers and Their Operations, Types of Navy Boilers</u>
MN 10386	<u>We Build, We Fight</u>
MN 10901	<u>Can Do</u>
MA 8119A	<u>Military Pipelines, Laying Pipeline</u>
MA 9559	<u>First Aid, Part IV, Resuscitation</u>
MC 8127	<u>How to Transport, Finish, and Cure Quality Concrete</u>
MH 9546	<u>SATS - Short Airfield for Tactical Support</u>
TF-11-	
3513	<u>Manual Telephone Central Office</u>
TF 6080A	<u>Maintenance of Energized Circuits, 5000 Volts and Over</u>

COMMERCIAL TRAINING AIDS

1. Films, Navy numbered

CLI 001 - Climbing With Confidence, Edison Company,
El Hobre, California

2. Films, Not Navy numbered

ABC's of Automotive Engines, General Motors Corporation,
Detroit, Michigan

ABC's of Diesel Engines, General Motors Corporation,
Detroit, Michigan
Piping Safety, Revere Copper & Brass Company, Los Angeles,
California
Power Trains, Aims Instructional Media, Hollywood, California

BUILDER

1. MAJOR EQUIPMENT

Band Saw
Chain Saw
Circular Saw
Concrete Kumbalong
Jitterbug Tamper
Jointer
Lathe
Mortar Mixer
Radial Arm Saw
Rollerbug
6 S Mixer
Table Saw
Trowling Machine
Vibrator
Vibratory Screen

2. MINOR EQUIPMENT AND TOOLS

Brick Trowel
Bull Float
Edger
Float
Hammers
Hand Saws
Jointing Tools
Magnesium Darbie
Magnesium Float
Mason's Hammer
Mason's Level
Miter Box
Paint Brushes
Paint Rollers
Pointer
Rub Block
Scrapers
Shovel
Spray Paint Rig
Squares
Steel Trowels
Wheel Barrow

3. CONSUMABLE MATERIALS

Block
Glue
Lime
Nails
Paint
Sand
Sandpaper
Wood

CONSTRUCTION ELECTRICIAN

1. MAJOR EQUIPMENT

Drill Motors
Megger
1.5 KW Lite Plant
VOM

2. MINOR EQUIPMENT AND TOOLS

Ball Peen Hammer
Channel Locks
Claw Hammer
Combination Pliers
Diagonal Pliers
EMT Bender
Fish Tapes
Gaff Gauge & File
Hickey
Hydraulic Bender
Knives
KO Punches
Lineman's Tool Kit
Offset Screwdriver
Philips Screwdriver
6' Folding Rule
Soldering Iron
Special Purpose Hammer
Standard Screwdriver
Stripper

3. CONSUMABLE MATERIALS

Poles
Single Conductor #12 Wire
Solder
Tape
Two Conductor #12 Wire

CONSTRUCTION MECHANIC

1. MAJOR EQUIPMENT

Automotive Vehicle
Crawler Tractor
5 Ton Tactical Vehicle
Lube Skid and Rack
Tire Demounter

2. MINOR EQUIPMENT AND TOOLS

Battery Terminal Cleaner
Battery Cable Puller
Bench Grinder
Brake Bleeder
Caliper
Chain Hoist
CM Tool Kits
Drill Press
Feeler Gauge
Hydrometer
Jacks
Jack Stand
Slings
Spark Plug Cleaner
Steel Rules
Taps & Dies
Thread Gauge
Timing Light
Trouble Light

3. CONSUMABLE MATERIALS

Air Filters
Chassis Lubricant
Cleaning Solvent
Crankcase Oil
Fuel
Gas Filters
Oil
Oil Filters
Rags

ENGINEERING AID

1. MAJOR EQUIPMENT

Levels
Transits

2. MINOR EQUIPMENT AND TOOLS

Bench Brush
Chair
Chain Pin
Curves
Data Book
Drafting Instruments
Drawing Boards
Erasing Shields
Lettering Guides
Machete
Philadelphia Rod
Plumb Bob
Proctor Mold and Hammer
Range Pole
Sand Cone
Scales
Sieve Set
Sledge Hammer
Speedy Moisture Tester
T-Square
Triangles

3. CONSUMABLE MATERIALS

Data Sheets
Erasers
Hubs & Stakes
Labor Analysis Sheets
Marking Tape
Masking Tape
MTO Forms
Nails
Paper
Pencils
Tacks
Time Cards

STEELWORKER

1. MAJOR EQUIPMENT

Arc Welding Rigs
Brake
Crimping & Beading Machine
Oxyacetylene/Oxymapp Cutting & Welding Rigs
Shear
Slip Roll Former
Welding Rigs

2. MINOR EQUIPMENT AND TOOLS

Adjustable Wrench
Blacksmith Kit
Commander Fid
Electric Arc Welding Kit
Erection Kit
Fid
Gas Welding and Cutting Kit
Gauges
Marlinspike
Rigging Screw
Rivet Guns
Sheetmetal Kit
Slag Hammer
Snips
Soldering Equipment
Wire Brush
Wire Rope Cutter
Wire Rope Splicing Kit

3. CONSUMABLE MATERIALS

$\frac{1}{8}$ " Plate Steel
Acetylene
Brazing Rod
Fiber Line
Flux
MAPP
Oxygen
Rebar
Rivets
Seizing Wire
Sheetmetal
Solder
Tie Wire
Twine
Welding Rod
Wire Rope

UTILITIESMAN

1. MAJOR EQUIPMENT

ND - 25
Oilers
Pipe Machine

AD-A053 007

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NAVY RECRUIT TRAINING OPTIMIZATION, POST-1980. PHASE II: CURREN--ETC(U)
FEB 78 D R COPELAND, D V MEW, J M HENRY
TAEG-53

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2. MINOR EQUIPMENT AND TOOLS

Caulking Iron
Chisel
Cutters
Face Shield
Files
Gloves
Hammers
Joint Runner
Ladle
Lead Pipe
Pipe Benches
Pipe Wrenches
Plumbers Furnace
Ratchet Stock
Reamers
Rules
Thermometer
Vises
Wind Break
Yarning Iron

3. CONSUMABLE MATERIALS

CISP
Calcium Hypochlorite
Cutting Oil
Diatomite
Freon 12
Freon 22
Lead
MAPP
Oakum
Orthotolodine
Pipe Dope

INSTRUCTOR PREPARED MATERIALS

1. CHARTS

Administrative Chain of Command
ACB Organization
Battalion Staff Organization
Battalion Watch Organization
Company Organization
Concept of Operations
International Road Signs
Engineer's Level
Engineer's Transit

2. CUT-AWAYS

Four Cycle Diesel Engine
Gate Valve
Globe Valve
Leaded CISP Joint
Six Cylinder Gasoline Engine
Two Cycle Diesel Engine

3. DISPLAY BOARDS

Common CISP Fittings
Concrete Tools
Fiber Line
Hardware (BU)
Interior Wiring Materials
Rebar
Telephone Subset Installation
Wire Rope
Yarning a Joint

4. INFORMATION SHEETS

Automotive Power Trains
Base Map
Body Tools and Climbing Equipment
CE Duties and Responsibilities
CE Handtools
Chemical Terms and Definitions
Cleanliness Checksheet
CM Tools and Equipment
Concrete
Construction Battalions
Construction Equipment Power Trains
Definitions of Plumbing Terms
Drafting
Equipment Identification
Equipment Management
Fittings and Materials Used with CISP
Garage Safety
Gas Welding and Cutting
Gradework
Group VIII Ratings
Hand Signals
How to Select Pumps
International Road Signs
Introduction to the BU Rating
Introduction to the CM Rating
Introduction to the EA Rating
Introduction to the EO Rating
Introduction to the SW Rating

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Major Components of a Refrigeration System

Painting

Planning and Estimating

Plumbing - Fittings, Tools, and Equipment

PM's and Tire Service

Regulations and General Information

Room Layout

Safety (CE)

Safety Policies

Schedule of Training

Seabee History

Seabee Terminology

Sheetmetal Tools and Their Uses

Soil Testing

Steel Structures

Surveying

Tool Identification (SW)

Types and Uses of Pumps

Water Treatment Safety

Wood Construction

5. JOB SHEETS

Construction of a Picture Frame

How to Tread Pipe with a 65R Large Pipe Die

Interior Wiring - Splices

Interior Wiring - Lighting Circuit

Orthographic Projection

PH Test with a Disc Comparator

Pre-start Checks

6. SAMPLES

Concrete Ingredients

CPM

Gradestakes

Lumber

Masonry Units

Mortar Ingredients

Properly Prepared Wood

Sheetmetal - Seams and Joints

Sheetmetal - Projects

Weather Beaten Wood

Wire Rope Seizing

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